

Energizer® for CICS

User Guide

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BMC Software, Inc.
2101 CityWest Blvd.
Houston TX 77042-2827
USA

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USA and Canada

Address BMC Software, Inc.
2101 CityWest Blvd.
Houston TX 77042-2827

Telephone 713 918 8800 or
800 841 2031

Fax 713 918 8000

Outside USA and Canada

Telephone (01) 713 918 8800

Fax (01) 713 918 8000

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Before Contacting BMC Software

Before you contact BMC Software, have the following information available so that a technical support analyst can begin working on your problem immediately:

- product information
 - product name
 - product version (release number)
 - license number and password (trial or permanent)
- operating-system and environment information
 - machine type
 - operating system type, version, and service pack or program temporary fix (PTF)
 - system hardware configuration
 - serial numbers
 - related software (database, application, and communication) including type, version, and service pack or PTF
- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
 - product error messages
 - messages from the operating system, such as `file system full`
 - messages from related software

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About This Book

This book contains detailed information about Energizer[®] for CICS and is intended for system administrators, application programmers, and database administrators.

To use this book, you should be familiar with the following items:

- Customer Information Control System (CICS)
- Multiple Virtual Storage (MVS) systems, job control language (JCL), and the Interactive System Productivity Facility (ISPF)
- Virtual Storage Access Method (VSAM) and the access method services utility (IDCAMS)

How This Book Is Organized

This book is organized as follows. In addition, an index is included at the end of the book.

Chapter/Appendix	Description
Chapter 1, "Overview"	provides a description of the product's functions, structure, and architecture.
Chapter 2, "Customizing Energizer for CICS"	describes the product's function parameters and default values.
Chapter 3, "Starting and Stopping Energizer for CICS"	explains how to automatically and manually activate product components.
Chapter 4, "Online Reporting Facility"	describes how to use the online reporting facility to review the information created by the product
Chapter 5, "Batch Reporting Facility"	describes the product's batch reporting features

Chapter/Appendix	Description
Chapter 6, "Guidelines"	provides an in-depth description of the product's function parameters and default values
Appendix A, "Sample Member Names"	provides sample, procedures, JCL, and copy books
Appendix B, "Customization Checklists"	summarizes the steps required to customize the product for your environment

Related Documentation

BMC Software products are supported by several types of documentation:

- online and printed books
- release notes and other notices

In addition to this book and the online Help, you can find useful information in the publications listed in the following table. As "Online and Printed Books" on page xiv explains, these publications are available on request from BMC Software.

Category	Document	Description
Installation documentation	<i>OS/390 and z/OS Installer Guide</i>	describes how to install the product libraries
Installation documentation	<i>MAINVIEW Installation Requirements Guide</i>	describes the product's software and storage requirements
User documentation	<i>Energizer for CICS Messages and Codes Guide</i>	provides information about the various messages issued by the product
User documentation	<i>Getting Started With Energizer for CICS</i>	explains how to install the software and conduct a product evaluation
Other documents	<i>Energizer for CICS Release Notes</i>	describes product enhancements and fixes included in the current version of the product

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Online Help

The Energizer for CICS product includes online Help. In the Energizer for CICS ISPF interface, you can access Help by pressing F1 from any ISPF panel.

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- updates to the installation instructions
- last-minute product information

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Conventions

This section provides examples of the conventions used in this book and explains how to read ISPF panel-flow diagrams and syntax statements.

General Conventions

This book uses the following general conventions:

Item	Example
information that you are instructed to type	Type SEARCH DB in the designated field. Type search db in the designated field. (Unix)
specific (standard) keyboard key names	Press Enter .
field names, text on a panel	Type the appropriate entry in the Command field.
directories, file names, Web addresses	The BMC Software home page is at www.bmc.com .
nonspecific key names, option names	Use the HELP function key. KEEPDICTIONARY option
MVS calls, commands, control statements, keywords, parameters, reserved words	Use the SEARCH command to find a particular object. The product generates the SQL TABLE statement next.
code examples, syntax statements, system messages, screen text	//STEPLIB DD The table <i>table_name</i> is not available.
emphasized words, new terms, variables	The instructions that you give to the software are called <i>commands</i> .

This book uses the following types of special text:

Note: Notes contain important information that you should consider.

Warning! Warnings alert you to situations that could cause problems, such as loss of data, if you do not follow instructions carefully.

Tip: Tips contain useful information that may improve product performance or that may make procedures easier to follow.

Chapter 1 Overview

Energizer for CICS is an innovative software product that maximizes CICS performance and availability by dynamically matching the CICS system environment to the current CICS workload. It provides significant resource savings with optimal CICS performance 24 hours a day, no matter what the transaction mix or workload.

Energizer for CICS provides the following key benefits:

- reduces CPU utilization and resources for all workloads, thereby dramatically increasing throughput
- reduces real storage usage, consequently improving CICS performance plus providing additional resources
- improves real-time system availability by eliminating bottlenecks, lockouts, and sympathetic outages
- provides spare CPU resources at peak demand periods, thereby meeting performance expectations
- matches the workload to available resources, thereby eliminating over commitment of resources and the resulting degradation of response time
- eliminates CICS program compression problems

Energizer for CICS - How it Works

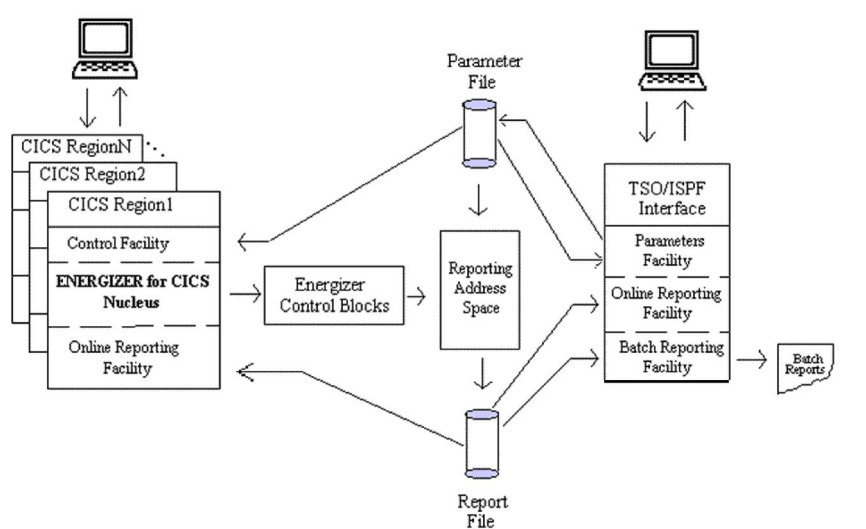
Energizer for CICS consists of independent functions that monitor resource utilization and specific CICS activities, make decisions based on the findings, and execute activities in order to enhance CICS performance. These functions

- dynamically control the number and duration of CICS MVS waits
- dynamically control when and how often MRO requests are processed
- dynamically control the use of CICS VSAM subtasking
- dynamically control the use of CICS Trace
- dynamically avoid CICS program compressions
- dynamically match CICS task dispatching to available real and virtual storage
- dynamically match the number of CICS tasks started to CPU and dynamic storage available
- dynamically manage CICS dispatch queues
- dynamically manage queues for CICS resources
- dynamically manage string and buffer allocations for files, transient data, and temporary storage
- provide customized dynamic task termination capability
- provide online and batch reporting information about the actions that Energizer for CICS executes in managing and enhancing CICS performance
- provide statistical analysis of Energizer for CICS and its effect on CICS, TSO, and batch activity

Energizer for CICS Structure and Architecture

Energizer for CICS enables the user to have full control over its activities. Its services can be phased into the system gradually. Each function can be individually customized and activated separately. A simulation mode is provided for each function to verify the results before adjusting the CICS environment. Any function can be activated or deactivated online and the parameter values can be modified in real-time. Reporting facilities provide continuous detailed information about the activities and decision-making processes that Energizer for CICS executes in order to manage and enhance CICS performance.

Figure 1-1 Energizer for CICS Structure



Energizer for CICS consists of an online CICS component and a Reporting Address Space. These are interfaced with the TSO/ISPF and the CICS operational facilities. There are two VSAM files, the Parameter File and the Report File. There is one Reporting Address Space per MVS image.

- The CICS component consists of a long-running CICS task performing multiple functions, and a front end to the MVS WAIT SVC.

The long-running task monitors CICS utilizations, detects CICS events, and makes adjustments to the CICS environment in order to optimize performance and avoid potential problems.

The local front end to the WAIT SVC uses patented technology to save CICS CPU resources.

- The Reporting Address Space provides a reporting platform for the rest of the product. It writes to the Report File all Energizer for CICS activities, which can then be continuously reviewed online under CICS and TSO, as well as with the Batch Reporting Facility.
- The Parameters Facility is used to display, set, or change the permanent parameters of the Energizer for CICS functions and set their Automatic Startup and Production/Simulation Mode features. The permanent parameters are contained in the Energizer for CICS Parameter File. Modifications to the Parameter File will take effect the next time the function is activated in the CICS region. The parameters can also be temporarily overridden during or after activation using the Energizer for CICS Control Facility. The Parameters Facility is accessed via the TSO/ISPF interface.
- The Control Facility is used to manually activate and deactivate the Energizer for CICS functions in the CICS region, view the current status of the functions, and temporarily change their parameter settings for the current activation of the function. It also provides a means for testing a function without actually performing the adjustments to the system. The Simulation Mode option will report on the proposed activities as they are needed without actually implementing their operations. Production Mode performs the adjustments to the system as needed.
- The Online Reporting Facility provides information online about the activities and operations that Energizer for CICS executed in order to enhance the CICS performance. Accessed from CICS and TSO, it displays the operational, statistical, and informational records from the Report File that were accumulated during the activation of the Energizer for CICS functions. The reasons for each action and the statistics for the action are displayed in an Activity Box associated with each action.
- The Batch Reporting Facility provides hard copy information about the activities and operations that Energizer for CICS executed in order to enhance CICS performance. It is accessed via the TSO/ISPF Interface or directly using a batch job. The PRINT option provides the same information that is displayed online in the Reporting Facility. The WORKSHEET and AVALSTAT options provide statistical information about the performance and availability of the CICS system, while the Batch/TSO Comparison Report provides statistical information about the Batch and TSO systems with and without Energizer for CICS.
- The Report File contains the actions and messages generated by the CICS component during the CICS session. The data can be displayed online by using the Online Reporting Facility or the Batch Reporting Facility.

- The Parameter File contains the permanent parameter settings used by Energizer for CICS to monitor and tune a specific CICS region. The parameter settings in the file can be set, displayed, and modified using the Parameters Facility. The settings can be temporarily overwritten in the CICS region using the Control Facility.

The Energizer for CICS code that executes in the CICS region uses only standard CICS parameters and interfaces with negligible overhead. Energizer for CICS can operate in multiple CICS regions and can be customized for each region separately.

Energizer for CICS activities are based on specific CICS events and resource utilizations. These activities consist of the following functions:

- Time-driven functions: At regular intervals, Energizer for CICS monitors CPU utilization in both the CICS address space and in the processing complex as a whole. It also monitors DSA usage, real storage usage, and the current page-in rate. When these resources exceed or fall below specific maximum or minimum thresholds, certain functions are activated that make changes to the CICS environment to enhance its performance or avoid potential problems.
- Event-driven functions: When Energizer for CICS encounters specific CICS events, such as MRO requests, CICS MVS waits, Short-On-Storage or MAXTASKS conditions, or VSAM subtask requests, decision-making logic is performed and actions are executed to provide optimal transaction throughput and resource usage.

The Energizer for CICS functions continuously save information about resource utilizations, CICS events, and actions taken. This information is then written to the Report File by the Reporting Address Space and can be immediately reviewed by means of the Online and Batch Reporting Facilities.

Energizer for CICS Reduces CPU Utilization and Real Storage Usage

Energizer for CICS will lower the CPU utilization and real storage usage for all CICS environments no matter what the workload or transaction mix. Each of the following functions can be activated separately to achieve significant resource savings. Together they provide the CICS system with additional resources that will be able to support more users, more transactions, and increased productivity.

Dispatch Management

The Energizer for CICS Dispatch Management function dynamically controls the number and length of MVS waits. CICS uses a significant amount of CPU by going in and out of MVS waits. The Dispatch Management function uses a proprietary algorithm to evaluate the current workload and determine when and for how long CICS should issue MVS waits. The Dispatch Management function alone will save CPU resources as well as real storage usage.

MRO Dispatch Management

The MRO Dispatch Management Function is an extension of the Dispatch Management Function. It assists with the management of the CICS dispatch processing within environments that have multiple CICS regions being managed by Energizer for CICS.

VSAM Subtask Management

The VSAM Subtask Management function dynamically controls the use of CICS VSAM subtasking in multiprocessor environments. When a CICS region reaches maximum capacity on one processor and has spare capacity on a second processor, CICS provides an option to off load specific I/O requests for VSAM data sets, temporary storage, and transient data. Additional processor cycles are required to run both the extra subtask and the communication between the processors. CICS VSAM subtasking increases the throughput of the CICS region, but at the expense of total CPU utilization.

In installations that use the VSAM Subtasking option, CICS subtasks all PUT operations regardless of CPU utilization and subtasks GET operations when CPU usage reaches 70%. The use of CICS VSAM subtasking when CPU utilization is below 75% - 85% wastes valuable CPU resources. Energizer for CICS saves these valuable resources by only allowing CICS to off load these VSAM I/O operations when CPU utilization reaches its throughput limit. It also turns off the appropriate subtask options when it calculates that CPU usage, without the active subtask function, would fall below the minimum threshold. Dynamically managing the use of VSAM subtasking saves considerable CPU resources for those installations using CICS VSAM subtasking and allows other installations to now utilize this CICS option economically.

Program Compression

The Program Compression Management function dynamically manages the invocation of the CICS Dynamic Program Storage Compression (DPSC) processing. Whenever programs occupy more than a fixed percentage of free storage, DPSC will delete programs from storage. The fixed percentage target is 50%.

All DSAs are different sizes, and the fixed 50% target can represent different orders of magnitude of free storage. Below the line DSA can be at most 7 or 8 MB. Above the line DSA is usually 5 to 10 times as large. As a result, CICS performs unnecessary program compressions from the above the line DSAs. The additional reloads can cause response-time delays as well as increased disk activity and CPU utilization.

Energizer for CICS saves resources and prevents response-time delays by providing dynamic DSA utilization targets for the CICS program management function. It transforms the fixed 50% target into a dynamic variable, unique for each CICS DSA and set according to the DSA's size, free area, and task storage usage. Program compression is still executed by CICS program management routines. Energizer for CICS simply provides dynamic utilization targets for optimizing CICS program compression execution.

Energizer for CICS Provides Real Time System Availability

Energizer for CICS provides real-time system availability by eliminating bottlenecks, slowdowns, system lockouts, and sympathetic outages caused by CICS demands for system resources. The following functions dynamically manage the queues for CICS logical resources and, in many circumstances, increase these resources in real-time avoiding queues and their impact on throughput and response time.

- VSAM Queue Management
- Transient Data Queue Management
- Temporary Storage Queue Management

These functions manage

- the number of VSAM file strings of CICS data sets
- temporary storage strings and buffers
- intra-partition transient data strings and buffers

- the number of requests that can wait for VSAM strings, LSR strings and buffers, temporary storage strings and buffers, and transient data strings and buffers

Logical resources used by CICS are predefined at system startup. Until now, they could not be increased, as needed, in real-time. If any of these resources is not immediately available, CICS puts the requesting task in a queue. These queues can keep growing because of an unexpected peak demand for a resource, or because of a slow disk response caused by contention for disk access or another disk problem. Eventually, CICS reaches MAXTASKS, the maximum number of concurrent tasks allowed in the system, or a Short-On-Storage stress condition caused by the waiting tasks. CICS is then locked out. In Multi-Region Operations, these lockouts can spread to connected regions as well, as requests queue up waiting to access the locked system. This is called a *sympathetic* outage. Multiple CICS systems grind to a halt.

Energizer for CICS eliminates these bottlenecks and lockouts by

- dynamically adding strings and buffers, as needed, to meet unexpected demands and disk access
- dynamically limiting the number of tasks waiting for strings and buffers when these resources can not be added
- dynamically terminating tasks waiting for these resources when CICS is approaching a stress condition or potential lockout, or when queue lengths exceed their limits

Energizer for CICS maintains full data integrity for all tasks and allows the user to identify specific tasks and files to be excluded or included in these queue management functions. By eliminating bottlenecks and averting potential lockouts and sympathetic outages, Energizer for CICS provides real-time CICS availability and increases throughput significantly.

MRO/ISC Queue Management

The MRO/ISC Queue Management function dynamically manages the number of tasks that can wait for an interconnected session. The use of interconnected CICS systems has solved many CICS user problems but has also introduced another potentially disastrous problem. If one CICS system has a problem, it is likely to spread to other connected systems and affect multiple users.

The Energizer for CICS queue management functions eliminate most CICS bottlenecks and potential lockouts and sympathetic outages. However, Energizer for CICS provides an additional fail-safe mechanism to prevent problems from spreading from one CICS system to another. When CICS reaches the maximum number of tasks that can safely wait for an interconnected MRO/ISC session, Energizer for CICS will terminate any subsequent requests for sessions. This action will prevent this CICS system from locking out because of a Short-On-Storage condition or by reaching MAXTASKS. The MRO/ISC Queue Management function eliminates the threat of sympathetic outages and the massive disruption of service that is possible in interconnected CICS systems.

Task Time-Out Management

The Energizer for CICS Task Time-Out Management function dynamically purges both active and waiting CICS transactions that have passed their allowable user-defined duration because of processing loops, program errors, ENQ problems, or overloaded systems. More and more mainframe CICS systems are used as information servers that are connected to intelligent client terminals, LANs, etc. A common characteristic of such a configuration is that if the server does not respond within a predetermined period of time, the connected client will time-out and therefore no longer expect a reply. Until now, there was no way for CICS to know that the request is no longer needed. Transactions continue to be processed unnecessarily, tying up resources for other waiting requests. The Energizer for CICS Task Time-Out Management function now allows CICS to synchronize its transaction processing with an external client server's time-out features and provide better real-time system availability and transaction throughput.

Energizer for CICS Provides Spare CPU Resources at Peak Demands

Energizer for CICS provides spare CPU resources for both expected and unexpected peak demand periods. Until now, there has been no way to provide extra resources in real-time to meet unexpected demands. The following functions provide extra CPU during high usage by dynamically managing the use of the CICS Trace Facility and CICS VSAM subtasking. The results are increased throughput and satisfaction of performance expectations.

Trace Management

The Energizer for CICS Trace Management function dynamically controls the use of the CICS Trace Facility. The CICS Trace Facility accounts for more than 25% of all the CPU resources used by CICS. During peak demand periods, this extra CPU utilization is significant, and often critical. Energizer for CICS provides a useful solution for utilizing this extra 25%+ resource during peak demand periods while maintaining full operation of CICS Trace during normal loads, and partial functionality during high usage.

To the system programmer, the CICS Trace Facility appears as a single service that can be either turned on or off in its entirety. In reality, the facility consists of multiple subfunctions that provide varied services. As CPU utilization approaches its throughput limit, Energizer for CICS automatically begins to turn off CICS trace services, one subfunction at a time, until CPU demands can be met. These subfunctions are turned off in reverse order of relative significance in diagnosing system problems as defined by the user. As soon as CICS no longer needs the extra CPU resources, the deactivated subfunctions are reactivated.

By dynamically limiting the use of the CICS Trace Facility during peak demand periods, Energizer for CICS provides spare CPU resources when needed to meet expected service levels during peak loads. The CICS Trace Facility can now be permanently enabled in all CICS installations.

Note: The Energizer for CICS Trace Management function does not impact any of the CICS performance products that are driven by the CICS Trace Facility.

VSAM Subtask Management

The Energizer for CICS VSAM Subtask Management function dynamically manages the use of CICS VSAM subtasking. It provides additional CPU resources during peak demand periods by off loading VSAM I/O operations to other processors when the CICS region reaches maximum capacity.

CICS VSAM subtasking requires additional processor cycles to run both the extra subtask and the accompanying communication. It adds high overhead to total system processing and should only be used when the CICS region requires additional CPU resources. Many installations cannot afford CICS VSAM subtasking because of its high total overhead. Until now, there was no way to restrict the use of CICS VSAM subtasking to critical peak periods only.

Energizer for CICS on the other hand, dynamically limits the use of CICS VSAM subtasking to peak demand periods only. It only allows CICS to off-load VSAM I/O activity to other processors when the CICS region requires additional resources. VSAM PUT and GET operations are only subtasked when CPU utilization reaches a critical threshold. These subtask functions are then deactivated again when CPU utilization reaches normal usage levels. By restricting the use of CICS VSAM subtasking to critical periods only, Energizer for CICS provides spare CPU resources when needed during critical peak load periods without impacting total CPU utilization during the entire day. Now all installations have the ability to use CICS VSAM subtasking.

Energizer for CICS Dynamically Matches Workload and Available Resources

Energizer for CICS minimizes response time and maximizes throughput by dynamically matching the current workload with available resources. The following functions ensure that both real and virtual storage are not over committed, CPU utilization is optimized, and the beneficial CICS options of VSAM subtasking and CICS Trace are operated efficiently and economically.

Transaction Class Management

The Transaction Class Management function dynamically regulates the maximum number of tasks that CICS can consider for dispatching without over committing resources. If resources are available, optimal CICS system performance is obtained by allowing multiple tasks to run concurrently. On the other hand, if resources are over committed, concurrent tasks should be reduced to avoid system stress conditions. Until now, there has been no way to match CICS task dispatching to available real and virtual storage in real-time.

Storage Management

CICS 4.1 and later allows storage to be added dynamically to CICS DSAs. Energizer for CICS dynamically manages, in real time, the size of CICS Extended DSA by dynamically adjusting the value of EDSALIMIT. Energizer for CICS manages, in real time, the sizes of the CICS DSAs by handling the SIT parameters DSALIMIT and EDSALIMIT. When a peak condition arises and more storage is necessary, Energizer for CICS will, within user-specified bounds, allocate more MVS storage to CICS. When storage is no longer required or when storage is grossly over defined, Energizer for CICS will return the excess storage to MVS. Energizer for CICS will always ensure that enough MVS storage is left above the line for MVS services.

Maxtasks Management

The Energizer for CICS Maxtasks Management function dynamically regulates the maximum number of tasks that can be started and handled by CICS in a reasonable manner. If dynamic storage and CPU resources are available, additional tasks should be allowed to run to optimize CICS performance. If these resources are not available, less tasks should be activated to avoid thrashing, bottlenecks that may never be resolved. Until now, there has been no way to match the internal CICS maximum tasks parameter to available CPU and DSA resources in real time.

The various Energizer for CICS queue management functions eliminate many of the common causes of the MAXTASKS condition and the resulting CICS lockout. The Maxtasks Management function completes this service by dynamically matching the CICS maximum tasks number to actual CPU and storage available. It adjusts the number optimally when CPU utilization exceeds a maximum threshold, DSA utilization approaches a Short-On-Storage condition, or the current number of tasks is approaching MAXTASKS.

Energizer for CICS ensures that at any particular point in time, the MAXTASKS value is matched to the resources available. CICS will only reach MAXTASKS when there are truly no resources left to handle additional tasks.

VSAM Subtask Management

The Energizer for CICS VSAM Subtask Management function dynamically matches the use of CICS VSAM subtasking to available CPU resources. Because VSAM subtasking adds additional overhead to total CPU capacity, it should only be used when CICS reaches maximum capacity in the region. Until now, this was predefined by CICS when it subtasks all PUT operations, regardless of CPU utilization, and subtasks GET operations when CPU utilization reaches only 70%.

Energizer for CICS, on the other hand, matches VSAM I/O subtasking with the current CPU capacity. It allows CICS to off load VSAM activity to other processors only when resource utilization in the CICS region reaches its throughput limit. Optimizing the use of VSAM subtasking not only saves considerable resources for your total system, but also provides maximum throughput both during normal workloads and when needed during high CPU capacity periods.

Trace Management

The Energizer for CICS Trace Management function dynamically matches the use of the CICS Trace facility to available CPU resources. Running the CICS Trace facility increases processing requirements by 25% in the CICS region. During peak demand periods, this extra overhead significantly impacts both response time and throughput. Often, expected service levels are not met. Until now, there has been no way to control the use of the CICS Trace facility in real time in order to limit its services as needed.

Energizer for CICS dynamically controls the number of active CICS trace functions when CPU utilization exceeds a critical threshold. The Energizer for CICS Trace Management function automatically begins to turn off CICS trace functions, subfunction by subfunction, until the CPU usage falls below this critical point. When CPU utilization falls below a safe threshold, the deactivated subfunctions are reactivated, one by one, as long as CPU resources are available for the service.

By matching the use of CICS Trace services to CPU resources available, an installation can take full advantage of all the debugging and problem-determination benefits of CICS Trace during most of the day and maintain expected service levels at all times, even at peak demand periods.

Summary of Functions

Table 1-1 provides a comprehensive checklist for understanding the full range of Energizer for CICS functions and capabilities.

Table 1-1 Summary of Functions

Functions/ Benefits	Reduces CPU Utilization	Reduces Real Storage Usage	Provides System Availability	Provides Spare CPU Resources	Matches Workload and Resources	Eliminates Program Compression Problem	Improves Response Time	Improves Transaction Throughput
Dispatch Management	X	X		X	X		X	X
Maxtasks Management			X		X		X	X
MRO Dispatch Management	X	X		X	X		X	X
MRO/ISC Queue Management			X		X		X	X
Program Compression	X	X	X	X	X	X	X	X
Storage Management		X			X		X	X
Task Time-Out Management			X		X		X	X
Temporary Storage Queue Management			X		X		X	X
Trace Management	X			X	X		X	X
Transaction Class Management		X	X		X		X	X
Transient Data Queue Management			X		X		X	X
VSAM Queue Management			X		X		X	X
VSAM Subtask Management	X			X	X		X	X

Chapter 2 Customizing Energizer for CICS

Energizer for CICS is easy to use. Once it is started, it needs no further attention. Each service of Energizer for CICS runs as an independent function. Each Energizer for CICS function can be individually activated (using the online Control Facility), or customized to start up automatically in the region. Customizing Energizer for CICS for your CICS system is done via the Energizer for CICS TSO/ISPF User Interface. The TSO/ISPF User Interface is activated by the Energizer for CICS CLIST, customized during installation.

Note: BMC Software recommends that you deselect the 'Long message in pop-up' option on the ISPF Settings screen (Option 0 on the ISPF Primary Option Menu), before invoking the TSO/ISPF User Interface. If this option is not deselected, problems may occur when Energizer for CICS attempts to display messages.

Customization of Energizer for CICS consists of two simple steps:

1. Specifying the files to be used by the TSO/ISPF User Interface with the Dialog Management Screen (Option 4 on the Energizer for CICS Primary Menu).
2. Setting the default parameters of the functions with the Parameters Facility (Option 1) and modifying them, if necessary, with the individual function parameter screens.

Note: After initial installation of Energizer for CICS in your system, it is best to try the product using the default parameters for all the functions. In most cases, the default values provide optimal performance. See "Parameters Facility" on page 2-6. Customize only the Automatic Startup and Production/Simulation Mode parameters according to your installation needs.

Primary Menu (I00)

Energizer for CICS displays its TSO/ISPF Primary Menu when you activate the Energizer for CICS TSO/ISPF User Interface. See *Getting Started with Energizer for CICS* for instructions on invoking the TSO/ISPF User Interface.

Figure 2-1 Primary Menu

```

USERID  MYUSERID          ENERGIZER/CICS          DATE  01/02/20
REL  4.3.00              PRIMARY MENU            TIME  11:22
                                                    I00

OPTION  ===>

ENTER ONE OF THE FOLLOWING OPTIONS :

      1  PARAMETERS FACILITY      APPLID =          (FULL/GENERIC/BLANK)
      2  BATCH REPORTING FACILITY
      3  ONLINE REPORTING FACILITY
      4  DIALOG MANAGEMENT
      5  PRODUCT AUTHORIZATION
      X  EXIT

COPYRIGHT BMC SOFTWARE INC.  1992 - 2002 ALL RIGHTS RESERVED
ENERGIZER/CICS 4.300  03/01/01 ESA ASSEMBLED 01/26/01 13.56
-----
F1=  HELP  F2=  SPLIT  F3=  END    F4=  RETURN  F5=          F6=          F7=
F8=          F9=  SWAP  F10=         F11=         F12=

```

The Energizer for CICS Primary Menu lists five options. To select an option, enter the option number in the **OPTION** field and press **Enter**. Energizer for CICS displays the screen for the option you selected.

The options are described below.

1. Parameters Facility: Used for specifying the parameters of each of the Energizer for CICS functions and setting their Automatic Startup and Production/Simulation Mode features for a specific CICS region (see the following sections).

APPLID: Enter the APPLID of the CICS region. Enter the generic form of the APPLID using the wildcard suffix "*" to get a list of the corresponding CICS regions, or leave it blank for a complete list of APPLIDs in the Parameter File. Make sure that the Parameter File has been specified on the Dialog Management Screen (Option 4) before accessing the Parameters Facility.

2. Batch Reporting Facility: Used for producing hard copy reports of the actions that Energizer for CICS executed in order to enhance CICS performance (see Chapter 5, "Batch Reporting Facility"). Make sure that the Report File has been specified on the Dialog Management Screen (Option 4) before accessing the Batch Reporting Facility.
3. Online Reporting Facility: Used for displaying information about the actions that Energizer for CICS executed in order to enhance CICS performance (see Chapter 4 "Online Reporting Facility"). Make sure that the Report File has been specified on the Dialog Management Screen (Option 4) before accessing the Online Reporting Facility.
4. Dialog Management: Used for specifying the data sets and other default settings that will be used by the Energizer for CICS TSO/ISPF User Interface (see the following sections).
5. Product Authorization: Used for obtaining authorization to run the product (see the "BMC Software Product Authorization" appendix in the *OS/390 and z/OS Installer Guide*).

Press **Enter** to process the selection.

Press **PF3** or **PF4** to return to the ISPF screen from which you activated the Energizer for CICS TSO/ISPF User Interface.

Dialog Management Screen (I40)

Energizer for CICS displays the Dialog Management screen when you select Option 4, Dialog Management, from the Energizer for CICS Primary Menu.

Figure 2-2 Dialog Management Screen

```

USERID  MYUSERID          ENERGIZER/CICS          DATE  01/03/01
REL   4.3.00              DIALOG MANAGEMENT      TIME  08:20
                                                I40

OPTION  ===>
        ENTER DATA SET NAMES AND DDNAMES:

                ENERGIZER/CICS REPORT DATA SET          DDNAME  ===> PEREPORT
                ====> BCVM.ECS42.SJSC.RPT
                ENERGIZER/CICS PARAMETER DATA SET        DDNAME  ===> PEPARMS
                ====> BCVM.ECS42.SJSC.PRMS

                ENTER CICS APPLID:          ENTER CICS VERSION:
                ====> BCVCT61C              =====> 6.1

PRESS ENTER TO SAVE CHANGES
-----
F1=  HELP   F2=  SPLIT  F3=  END    F4=  RETURN  F5=
                SWAP   F10=          F11=          F12=

```

The Dialog Management panel is used to specify the names of files used by the application. Use this screen to set the defaults for the TSO/ISPF session. The Parameters Facility requires the Parameter File, which can be shared by multiple regions. The Online Reporting Facility and Batch Reporting Facility require the Report File, which can also be shared by multiple CICS regions.

When you enter the CICS APPLID and CICS VERSION at the bottom of the screen, all TSO/ISPF User Interface screens that require this information will automatically default to these values.

Enter the data set names next to the arrow on the line below the data set description. To change an existing data set name, type over the entry. BMC Software recommends that you do not change the default DDNAME of the report data set.

ENERGIZER/CICS REPORT DATA SET (PEREPORT): This file contains the activities and messages generated during the activation of the Energizer for CICS functions in the CICS regions. The data can be displayed using either the Online Reporting Facility (described in chapter 4) or the Batch Reporting Facility (described in chapter 5). This file is required by the Online Reporting Facility and the Batch Reporting Facility. Refer to your installation of Energizer for CICS for the name of your report file.

ENERGIZER/CICS PARAMETER DATA SET (PEPARMS): This file contains the permanent parameter settings used by Energizer for CICS to tune and monitor a specific CICS region. These parameters will take effect when the CICS region is brought up and the specific function for which the parameters relate is activated. To change the parameter settings in this file, use the Parameters Facility, described in “Parameters Facility” on page 2-6. To *temporarily* change the parameter settings for an activated function in a CICS region, invoke the Control Facility within the CICS User Interface. Refer to your installation of Energizer for CICS for the name of your Parameter File. This file can be shared by multiple regions.

CICS APPLID: Specify the default VTAM Application Identification to be used for the Energizer for CICS TSO/ISPF User Interface. It will automatically be the default CICS APPLID for the Parameters Facility and will be displayed at the top of all the parameter screens.

CICS VERSION: Specifies the default CICS version and release to be assigned when the first Application Identification is defined. Some parameter ranges and defaults are also different. The parameter screens differ for these functions. The majority of functions are common to all releases. Verify this field for each CICS APPLID to be initialized and/or customized.

Press **Enter** to save the changes.

Press **PF3** to return to the Energizer for CICS Primary Menu.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Parameters Facility

The Energizer for CICS Parameters Facility is used to display, set, and change the parameter values of the Energizer for CICS functions and set their Automatic Startup and Production/Simulation mode features. The current parameter values are contained in the Parameter File. The parameter settings displayed on the parameters screens for each function include either the default settings for each function or your customized settings. Modifications to the Parameter File will take effect the next time the function is activated in the CICS region. After the function is activated, you can temporarily override the parameters by using the Control Facility in the CICS User Interface.

Each function has its own AUTOSTART and Production/Simulation MODE parameter settings. The Autostart feature sets the function to automatically start when the CICS region is activated. You can manually activate the function in the region by using the Control Facility in the CICS User Interface. The Production/Simulation Mode Feature sets the permanent mode of operation for the function: PROD will report and perform the adjustments to the system as needed; SIML will only report the actions to the Report File. The mode of operation can be temporarily changed during manual activation of the function in the CICS region. The General Parameters screen allows you to globally set the AUTOSTART and MODE parameters for all the functions.

The Energizer for CICS Parameters Facility also contains the APPLID List Screen which is used as a maintenance facility for the Parameter File. This screen displays a list of APPLIDs contained in the Parameter File. It is accessed by either leaving the APPLID field blank on the Energizer for CICS Primary Menu to get a complete list of CICS APPLIDs, or by entering the generic form of the APPLID using the wildcard suffix * to get a list of the corresponding CICS APPLIDs. The Parameters Facility APPLID List screen is used to select an APPLID for parameter customization or perform file-maintenance activities (such as copying parameter records, resetting parameter values to default values, or deleting the APPLID records from the Parameter File).

Before accessing the Parameters Facility, make sure that the Parameter File has been specified on the Dialog Management Screen (Option 4).

Parameter File Access Authorization

Using the ISPF User Interface there are two levels of authorization when accessing the Energizer for CICS parameter file.

- **Update Level:** This access level enables the user to define and modify all parameters for the CICS regions that are managed by Energizer for CICS.
- **Read-Only Level:** This access level enables the user to read the parameters that have been previously defined within the parameter file.

The level of authorization a user is granted is determined by the RACF authorization defined for the user. The RACF authorization level defined for the user to access the parameter file determines the authorization level within the Parameter Facility. Users that are authorized within RACF for UPDATE access are permitted to define and modify the Energizer for CICS parameters. Users that are authorized within RACF for READ access are only permitted to view the previously defined parameters.

Parameters Facility APPLID List Screen (ILA)

The Parameters Facility APPLID List screen is displayed when you select Option 1, Parameters Facility, from the Energizer for CICS TSO/ISPF Primary Menu and enter a generic APPLID or leave the APPLID field blank.

Figure 2-3 Parameters Facility APPLID List Screen

```

USERID MYUSERID                ENERGIZER/CICS                DATE 02/01/18
REL 4.3.00                     PARAMETERS FACILITY           TIME 10:25
                                APPLID LIST                  ILA

OPTION ==>

ENTER: 'S' - SELECT APPLID; 'C' - COPY  APPLID; 'R' - COPY WITH REPLACE
       '?' - QUERY APPLID; 'D' - DELETE APPLID; 'I' - RESET TO DEFAULTS

PE119I: PARAMETER FILE AUTHORIZATION IS SET FOR UPDATE ACCESS
  APPLID  VER  TO APPLID  STATUS
_ BCVCG41C 4.1
_ BCVCG52C 5.2
_ BCVCG53C 5.3
_ BCVCG61C 6.1
_ BCVCT41C 4.1
_ BCVCT52C 5.2
_ BCVCT53C 5.3
_ BCVCT61C 6.1
_ BCVCT62C 6.2
**END**

PF13=HELP      14=SPLIT      15=END      16=RETURN   17=          18=
PF19=UP        20=DOWN      21=SWAP     22=          23=          24=

```

The Parameters Facility APPLID List screen is used to select CICS APPLIDs for parameter customization or perform file maintenance activities on the APPLID records in the Parameter File. It displays a complete list of all APPLIDs contained in the Parameter File if the APPLID field on the Energizer for CICS Primary Menu was blank. If the APPLID field contained a generic form of the APPLID with a wildcard suffix *, only the corresponding CICS APPLIDs will be displayed.

To select an APPLID for parameter customization, type an **S** in the field preceding the APPLID and press **Enter**. Energizer for CICS displays the Parameters Facility screen (I10) described in the next section. The **APPLID** field on the top of this screen cannot be modified when the screen is reached from the APPLID List screen. Press **PF3** to return to the APPLID List screen to select the next APPLID for customization or to process the next APPLID, if multiple APPLIDs were selected.

The following maintenance commands can be entered in the field preceding the APPLID. Multiple requests will be processed separately, one at a time, upon completion of the previous request.

? - QUERY APPLID: Display general information about the parameter settings of this APPLID: CICS version and release, AUTOSTART and MODE settings, and the status of the parameters records for each function. See Figure 2-4 on page 2-10. Press **PF3** or **Enter** to return to this screen or to process the next request.

C - COPY APPLID: Copy the current APPLID parameter settings to the CICS APPLID entered in the **TO APPLID** field. Existing parameter settings will not be replaced. Use **COPY WITH REPLACE (R)** to replace all parameter values. Parameter settings that are missing for the current APPLID will be created and set to default values in the new APPLID parameter records.

Note: Ensure that the CICS regions identified by APPLID and TO APPLID have the same CICS version and release.

R - COPY WITH REPLACE: Copy the current APPLID parameter settings to the CICS APPLID entered in the **TO APPLID** field, replacing all existing parameter values. Use **COPY APPLID (C)** to copy only the non-existing parameter values. Parameter settings that are missing for the current APPLID, will be created and set to defaults in the new APPLID parameter records.

I - RESET TO DEFAULTS: Reset all the parameter settings for the APPLID to their default values according to the CICS version and release. Parameter settings that are missing will be created and set to default values. When you type over the VER field with a new CICS version and release, the parameters will be reset to the default values for the new version.

D - DELETE APPLID: Delete all the parameter records for this APPLID from the Parameter File. A box will be displayed asking for confirmation of the delete operation. Press **Enter** to delete or **PF3** to cancel the request.

U - UPDATE CICS VERSION: Change the CICS version and release of the APPLID in the Parameter File. Type over the **VER** field with a new CICS version and release. *No other* parameter values previously set for the APPLID will be changed.

Press **Enter** to process the request. The **STATUS** field will display the completion status of the request. One of the following return codes will also be displayed for the **COPY (C)**, **COPY WITH REPLACE (R)**, or **RESET TO DEFAULTS (I)** commands:

RC=0: Function successfully completed. All parameter values processed.

RC=4: Function successfully completed. Existing parameter values not replaced.

RC=20: Function failed. Contact Product Support.

Press **PF3** to return to the Energizer for CICS Primary Menu.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Figure 2-4 Parameters Facility APPLID List Query Screen

USERID MYUSERID	ENERGIZER/CICS	DATE 02/03/14
REL 4.3.00	PARAMETERS FACILITY	TIME 11:41
APPLID LIST		ILA
OPTION ==>		
ENTER: 'S' - SELECT APP	APPLID = CICS41	PRESS PF3 TO CONTINUE
'?' - QUERY APP	VERSION = 4.1	AUTOSTART = NO
	MODE = PROD	AUTO-EXIST START MODE
APPLID VER TO APP	DISPATCH MANAGEMENT	NO
? CICS41 4.1	MRO DISPATCH MANAGEMENT	NO
_ CICS52 5.2	MRO ISC/QUEUE MANAGEMENT	NO
_ CICS53 5.3	PROGRAM COMPRESSION MANAGEMENT	NO
_ CICS61 6.1	STORAGE MANAGEMENT	NO
_ CICS62 6.2	VSAM QUEUE MANAGEMENT	NO
END	TRACE MANAGEMENT	NO
	VSAM SUBTASK MANAGEMENT	NO
	MAXTASKS MANAGEMENT	NO
	TEMPORARY STORAGE QUEUE MANAGEMENT	NO
	TRANSIENT DATA QUEUE MANAGEMENT	NO
	TASK TIME-OUT MANAGEMENT	NO
	TRANSACTION CLASS MANAGEMENT	YES NO PROD

Parameters Facility Screen (I10)

Energizer for CICS displays the Parameters Facility screen

- when you select Option 1, Parameters Facility, from the Energizer for CICS Primary Menu and enter a non-generic CICS APPLID
- when you select an APPLID from the Parameters Facility APPLID List screen

Figure 2-5 Parameters Facility Screen

```

USERID MYUSERID          ENERGIZER/CICS          DATE 02/01/18
REL 4.3.00              PARAMETERS FACILITY      TIME 11:22
                                           I10
OPTION ===>              CICS APPLID = BCVCT62C

ENTER: 'S' TO SELECT FUNCTION

_ GENERAL                  _ TEMPORARY STORAGE QUEUE MANAGEMENT
_ DISPATCH MANAGEMENT      _ TRANSIENT DATA QUEUE MANAGEMENT
_ MRO DISPATCH MANAGEMENT  _ TASK TIME-OUT MANAGEMENT
_ MRO/ISC QUEUE MANAGEMENT _ TRANSACTION CLASS MANAGEMENT
_ PROGRAM COMPRESSION MANAGEMENT
_ VSAM QUEUE MANAGEMENT    _ STORAGE MANAGEMENT
_ VSAM SUBTASK MANAGEMENT  _ TRACE MANAGEMENT
                           _ MAXTASKS MANAGEMENT

INITIALIZE TO DEFAULTS _ (Y) COPY TO APPLID ===> REPLACE _ (Y)

-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=          F6=          F7=
F8=          F9= SWAP F10=      F11=          F12=

```

The various Energizer for CICS Parameters screens are used to display, set, or change the parameter values of the Energizer for CICS functions and set their Automatic Startup and Production/Simulation Mode features. The Parameters Facility screen is used to select a function for parameter modification and to globally initialize the parameters for a CICS APPLID to the system default values or copy them to another CICS APPLID. Modifications to the parameters will take effect the next time the function is activated in the CICS region.

Note: Because of VSAM file-sharing limitations, it is advisable to exit the Control Facility screen in the CICS region before activating a function with the new parameter values.

Energizer for CICS can be installed in any CICS region. Because the functions are independent of one another, they can be activated separately in each region. The exceptions are the Dispatch Management functions. When one of the Dispatch Management functions starts, the other function starts automatically. The functional parameters can be different for each region. Unless the default parameters are desired, the parameters must be set for each CICS region where the function will be active. If you enter the VTAM Application Identification of CICS in the **CICS APPLID** field, each of the subsequent functional parameter screens will apply to that CICS region only. The CICS APPLID field on each screen displays the applicable region. To set the parameters for multiple CICS regions, you must return to this menu and enter a new CICS APPLID. If the Parameter File is not shared among your different CICS regions, you must also return to the Energizer for CICS Primary Menu and select Option 4, Dialog Management, to redefine the Parameter File.

Note: If you entered the Parameters Facility screen from the APPLID List screen, you must return to that screen, by pressing **PF3**, to select another APPLID.

CICS APPLID: Enter the VTAM Application Identification of the CICS region where Energizer for CICS will be active. The default is the APPLID entered on the Dialog Management screen. This field cannot be modified when the screen was reached from the APPLID List screen.

INITIALIZE TO DEFAULTS: Type **Y** to update the Parameter file with the default values for all the functions. Press **Enter** to process the initialization. After initialization, customize a function, if necessary, by selecting it, as described below, and typing over the default entries.

Note: If the APPLID does not exist, Energizer for CICS will initialize the parameters to the default values for the CICS version entered on the Dialog Management Screen (Option 4). Otherwise, the parameters will be initialized to the default values for the CICS version currently defined for the APPLID.

Note: If the APPLID already exists and you attempt to initialize it to default values without first setting the REPLACE parameter (discussed below) to **Y**, you will receive an error message.

COPY TO APPLID: Specify an additional CICS APPLID to copy all the current parameter settings. Indicate whether to replace existing parameter records (**Y**) or only create new parameter records (**blank**). Press **Enter** to process the duplication. To modify a functional parameter for a new CICS region after duplication, exit the Parameters Facility, specify the new APPLID at the Main Menu, and then press Enter to reference the new APPLID.

Note: If you are not using the REPLACE option, make sure that the CICS regions identified by the **APPLID** and **COPY TO APPLID** fields have the same CICS version and release. Select **General** to display the CICS version of the APPLID.

REPLACE: Indicate whether to replace existing parameters (**Y**) or only create the parameter records that are missing (**blank**). This field applies to both INITIALIZE TO DEFAULTS and COPY TO APPLID.

Note: To simplify customization of Energizer for CICS in multiple CICS regions, initialize the first CICS region to the default values, customize the parameters as needed, copy the parameters to subsequent CICS regions, and customize each region if different. Verify the CICS version and release of each region.

The screen lists the Energizer for CICS functions. To select a function, type **S** in the field preceding the function and press **Enter**. Energizer for CICS displays the parameter screen for the function that you have selected. After entering the changes to the parameters, press **Enter** to update the Parameter File. Press **PF3** to return to this menu.

Note: As soon as you display a functional parameter screen, a parameter record for that function will be created with the default parameter values (if it does not already exist).

For multiple selections, enter an **S** in the field preceding each function and press **Enter**. Energizer for CICS will display the parameter screen for the first function you selected. After entering the changes to the parameters, press **Enter** to save the changes. Press **PF3** to display the parameter screen for the next function you have selected. When you have completed all the requested functions, press **PF3** to return to this menu.

Note: Be sure to press **ENTER** to save the changes on each parameter screen. PF3 will *not* update the Parameter File.

The functions and their parameter settings are described below. Each function also has its own AUTOSTART and Production/Simulation MODE parameter settings described previously.

Note: Be sure to modify the CICS VERSION field on the Dialog Management screen, if necessary, to get the appropriate CICS version and release.

Note: Do not modify parameters designated INTERNAL unless instructed to do so by Customer Support.

General: The General Parameters screen is used to set the parameters for Energizer for CICS features that are used by multiple functions. The general parameter settings include the CICS version and release of the current region, the DDNAME of the Report File, the standard interval length used by the time dependent functions, the interval length used by the Reporting Function for writing records to the Report File, the interval length used by the Reporting Function for summary reports, the SVC Screening setting for the region, the default AUTOSTART and MODE parameters for all the functions, and the Exception Message Routing Option.

Dispatch Management: The Dispatch Management function dynamically controls when and for how long CICS will issue MVS waits. The Dispatch Management parameter settings include a CPU utilization threshold for managing the MVS waits and internal parameters that should only be changed based on the recommendation of Customer Support personnel.

MRO Dispatch Management: The MRO Dispatch Management Function is an extension of the Dispatch Management Function. It assists with the management of the CICS dispatch processing within environments that have multiple CICS regions being managed by Energizer for CICS.

MRO/ISC Queue Management: The MRO/ISC Queue Management Function controls the number of tasks that can wait for an interconnected MRO/ISC session. The MRO/ISC Queue Management parameter settings include the maximum number of tasks allowed to wait for a session and a control parameter to purge waiting tasks during stress conditions.

Program Compression Management: The Program Compression Management function provides dynamic DSA utilization targets for the program management process of CICS. The parameter settings include maximum and minimum storage factors, and DSA utilization thresholds for determining when program compression is necessary.

VSAM Queue Management: The VSAM Queue Management function dynamically manages the number of concurrent VSAM file strings of CICS data sets and the number of requests that can wait for file strings and LSR strings and buffers. The VSAM Queue Management parameter settings include the maximum number of strings that can be added to a file, the maximum number of tasks allowed to wait for file strings and LSR strings and buffers, the parameter settings to cancel tasks when CICS is short on storage, at MXT, or at CMXT/MAXACTIVE for the appropriate task class, the parameter setting for restoring original string values prior to termination of the function, the specific files and tasks to be included/excluded from the function, the specific tasks to be excluded from termination during stress conditions, a file specification list for customizing the functional parameters for a specific file, and internal parameters that should only be changed based on the recommendation of Product Support personnel.

VSAM Subtask Management: The VSAM Subtask Management function dynamically controls the use of sub tasking CICS requests to VSAM based on user-defined limits of CPU utilization. When CPU utilization exceeds these thresholds, the function allows CICS to utilize VSAM sub tasking for PUT and GET operations. The function also turns off the appropriate subtask option when it calculates that the CPU usage without the active subtask will fall below the minimum defined. VSAM Subtask Management parameter settings include the separate minimum limits of CPU utilization for VSAM PUT and GET operations before activating VSAM Sub tasking, and an internal parameter that should only be changed based on the recommendation of Product Support personnel.

Temporary Storage Queue Management: The Temporary Storage Queue Management function dynamically manages the number of CICS temporary storage strings and buffers and the number of requests that can wait for these resources. Temporary Storage Queue Management parameter settings include the maximum number of temporary storage strings and buffers that can be added, the maximum number of tasks allowed to wait for these resources, and a control parameter to purge waiting tasks during stress conditions.

Transient Data Queue Management: The Transient Data Queue Management function dynamically manages the number of CICS transient data strings and buffers and the number of requests that can wait for these resources. Transient Data Queue Management parameter settings include the maximum number of transient data strings and buffers that can be added, the maximum number of tasks allowed to wait for these resources, and a control parameter to purge waiting tasks during stress conditions.

Task Time-Out Management: The Task Time-out Management function dynamically purges active or waiting CICS transactions that have passed their allowable duration. Task Time-out Management parameter settings include the default maximum duration and purge conditions for all tasks handled by the function, a control parameter to create detailed action messages for each purged task, and a Task Age table for customizing these parameters individually for specific tasks.

Transaction Class Management: The Transaction Class Management function matches the workload processed to the resources available by dynamically increasing and decreasing the internal CICS parameters, MAXACTIVE and PURGETHRESH, for each transaction class, based on current storage availability and CPU utilization. When the CPU and/or DSA utilization exceeds user-defined thresholds, Energizer for CICS reduces the MAXACTIVE and/or the PURGETHRESH values for that class until the resources are again available. When the CPU and DSA usage fall below minimum thresholds and CICS is approaching the MAXACTIVE limit, Energizer for CICS increases the limit for that class. Transaction Class Management parameter settings include the minimum and maximum CPU and DSA utilization thresholds, the minimum and maximum MAXACTIVE and PURGETHRESH values allowed, the transaction class priority, the type of utilization measurement to use, a modification indicator, and a list of tasks to be included/excluded from the function.

Storage Management: The Storage Management function dynamically regulates the maximum amount of storage that CICS can use for its DSAs so that short-on-storage situations might be prevented before they occur. The function dynamically increases and decreases the CICS internal parameters DSALIMIT and EDSALIMIT, which are the upper limits of the amount of storage that CICS can allocate for the below- and above-the-line DSAs, respectively.

Trace Management: The Trace Management function controls the number of CICS trace subfunctions that are active whenever the CPU utilization exceeds a user-defined critical threshold. It will automatically begin to turn off CICS trace subfunctions, one by one, until the CPU usage falls below this critical point. When the CPU utilization falls below a second user-defined threshold, the deactivated trace subfunctions are reactivated, as long as the CPU resources are available for the service. Trace Management parameter settings include the maximum and minimum limits of CPU utilization for turning on and off CICS trace subfunctions, identification of CPU utilization to monitor, and a Trace Options table for prioritizing CICS trace subfunctions deactivation.

Maxtasks Management: The Maxtasks Management function dynamically regulates the maximum number of tasks that can be concurrently handled by CICS. It adjusts the CICS Maximum Number of Tasks specification (MAXTASKS) according to a CPU utilization threshold, a DSA utilization threshold, MAXTASKS and short-on-storage conditions, or if the current number of tasks is approaching MAXTASKS. Maxtasks Management parameter settings include the maximum limits of DSA and CPU utilization, maximum and minimum values for CICS MAXTASKS, starting value for CICS MAXTASKS, and a control parameter to allow reduction of MAXTASKS below its original value.

Press **Enter** to process the selection.

Press **PF3** to return to the Energizer for CICS Primary Menu or to the Parameters Facility APPLID List screen.

Press **PF4** to return to the ISPF screen from which you invoked Energizer for CICS.

General Parameters Screen (I101)

The General Parameters screen is displayed when you select General from the Parameters Facility screen.

Figure 2-6 General Parameters Screen

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100              GENERAL PARAMETERS      TIME 13:48
                                     I101
OPTION ==>              CICS APPLID = CICS51
                                     DEFAULT

CICS VERSION              ==> 5.1              5.1
DDNAME OF REPORT FILE    ==> PEREPORT          PEREPORT
ACTIVATION INTERVAL      (TUNINTV) ==> 30        30      (1 - 300)
REPORT BATCHING INTERVAL (REPINTV) ==> 30        030     (5 - 300)
REPORTING INTERVAL       (REFREQ)  ==> 600       600     (60 - 3600)
USE SVC SCREENING        ==> YES              YES      (YES, NO)

TCCOUNT                  ==> YES              * INTERNAL *
AUTOSTART                ==> NO               NO        (YES, NO)
MODE                     ==> PROD            PROD      (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT F3= END   F4= RETURN F5=      F6=      F7=
F8=        F9= SWAP  F10=      F11=      F12= EXC MSG

```

The Energizer for CICS General Parameters screen is used to set the parameters for Energizer for CICS features that are used by multiple functions and define the characteristics of the CICS region. These settings include

- DDNAME of the Report File used by all the functions

- standard interval length used by the time-dependent functions
- interval length used by the reporting function for writing records to the report file
- interval length used by the reporting function for summary reports
- SVC Screening setting for the region
- default AUTOSTART parameter for all the functions
- default MODE parameter for all the functions when Energizer for CICS is activated in the CICS region

An Exception Message Routing option allows the user to direct Energizer for CICS exception-type action messages to the computer console and/or to a user-defined transient data queue destination. Individual exception messages can also be customized separately.

CICS VERSION: The CICS version and release installed in this region as obtained from the default value entered on the Dialog Management Screen, or as specified on the APPLID LIST screen.

DDNAME OF REPORT FILE: Specify the customized DDNAME of the report file used by Energizer for CICS to capture all of the specific messages generated during the activation and operation of Energizer for CICS in the CICS region. The contents of this file can be displayed using the Online Reporting Facility and Batch Reporting Facility. See Chapter 4, “Online Reporting Facility” and Chapter 5, “Batch Reporting Facility”, respectively.

Default: PEREPORT

Format: eight-character name

Restrictions: BMC Software recommends that you use the default file name.

ACTIVATION INTERVAL (TUNINTV): Specify the length of time between two successive monitoring checks of the CICS system by the Energizer for CICS long-running tuning transaction. This is the standard interval length that will be used for a problem free CICS system operating at low to medium utilization. Energizer for CICS will adjust this time interval, depending on resource utilization and problem situations.

Default: 30

Range of Values: 1-300 seconds

Restrictions: This parameter should only be changed based on the recommendation of Product Support personnel.

REPORT BATCHING INTERVAL (REPINTV): Specify the length of time (in seconds) between two successive updates of the Report File by the Energizer for CICS Reporting Address Space.

Default: 30

Range of Values: 5-300 seconds

Restrictions: This parameter should only be changed based on the recommendation of Product Support personnel.

REPORTING INTERVAL (REPFREQ): Specify the length of time in seconds between two successive Energizer for CICS summary reporting activities.

Default: 600

Range of Values: 60-3600 seconds

Restrictions: This parameter should only be changed based on the recommendation of Product Support personnel.

USE SVC SCREENING: Specifies whether to use the Energizer for CICS Screened Front-End in the CICS region (YES) or the Energizer for CICS General Front-End for the MVS WAIT SVC (NO). The Front-End is required in order to provide the Dispatch Management and MRO Dispatch Management services. The Screened Front-End affects only the particular CICS region. If you specify YES and some other product has already installed a Screened Front-End in the region, Energizer for CICS will issue an error message when you attempt to start the Dispatch Management functions. If this problem occurs, you must contact BMC Software Customer Support.

Default: YES

Range of Values: YES/NO

Restrictions: Contact BMC Software Customer Support before attempting to specify the NO option.

AUTOSTART: Specify whether to automatically start all of the functions in Energizer for CICS when the CICS region is brought up. The default for this parameter is NO. The user can selectively set the AUTOSTART parameter for each function separately. The default for each of the individual Energizer for CICS functions is also NO. In order to automatically activate the functions in the region, either change this parameter to YES, which will set their AUTOSTART parameter to YES, or change the setting to YES for each function that you want automatically activated. To manually activate a function, use the online Control Facility. See Chapter 3, “Starting and Stopping Energizer for CICS”.

Default: NO

Range of Values: YES/NO

Restrictions: Use this parameter to globally set the AUTOSTART parameter for all the functions. The AUTOSTART setting for each function will override this global parameter.

MODE: Specify the mode of operation for all of the functions in Energizer for CICS. PROD sets all the Energizer for CICS functions to production mode; all activated functions will report and perform the adjustments to the system as needed. SIML sets all the functions to simulation mode; the activated functions will only report the proposed actions to the Report File. The actions will not actually be implemented. The default setting for this parameter is PROD. The default setting for all the functions is also PROD. In order to restrict a function from making adjustments to the system, change the MODE setting for that function to SIML.

Default: PROD

Range of Values: PROD/SIML

Restrictions: Use this parameter to globally set the MODE parameter for all the functions. The MODE setting for each function will override this global parameter.

INTERNAL PARAMETER: This parameter should only be changed based on the recommendation of Product Support personnel.

Press **PF12** to access the Exception Action Message Routing screen. If changes were made to the General Parameters screen, press **Enter** to save the changes before accessing the Exception Message option.

Press **Enter** to save the changes. A message is displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Exception Action Message Routing Screen (I1mg)

The Exception Action Message Routing screen is used to specify whether to direct Energizer for CICS exception-type action messages to the console and/or to a user-defined transient data queue destination when an exception message is written to the Report File. Exception messages are action messages indicating exception conditions only (i.e. when Energizer for CICS changed a CICS parameter dynamically, canceled a task, or added resources.) The user can also indicate whether to include the Action Box with the message, decide whether to send the message even if the action was not taken, and specify the maximum time allowable between generating the message and sending it to the console and/or transient data queue destination.

Note: This facility can be used to integrate Energizer for CICS with your automated-operations product.

Figure 2-7 Exception Action Message Routing Screen

```

USERID  L99087                      ENERGIZER/CICS          DATE  99/08/02
REL    4.100                      GENERAL PARAMETERS        TIME  13:58
                                           EXCEPTION ACTION MESSAGE ROUTING      I1MG
                                           CICS APPLID = CICS52
                                           DEFAULT
SEND MESSAGES TO CONSOLE          ==> NO          NO          (YES, NO)
TO DESTINATION TO SEND MESSAGES  ==> NONE        NONE
SEND ACTION BOX                   ==> NO          NO          (YES, NO)
SEND MESSAGE IF ACTION WAS NOT TAKEN ==> NO          NO          (YES, NO)
MAXIMUM MESSAGE AGING (SECONDS)  ==> 120        120        ( 5 - 3600 )

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT  F3= END   F4= RETURN F5=      F6=      F7=
F8=        F9= SWAP   F10=      F11=      F12= MSG LIST

```

The Exception Action Message Routing screen sets the parameters globally for all exception-type action messages. Each exception message can be customized individually with separate parameters and destinations by using the Exception Action Message List Screen (I1ML) and Message Routing Attributes screen (I1MD). Press **Enter** to update the Parameter File. Press **PF3** to return to the General Parameters screen.

SEND MESSAGES TO CONSOLE: Specify **YES** if you want all of the exception messages to be directed to the console. The default is **NO**. Specific exception messages can be excluded from this specification by using the Exception Action Message List (I1ML) and Message Routing Attributes screen (I1MD).

Default: NO

Range of Values: YES/NO

Restrictions: None

TD DESTINATION TO SEND MESSAGES: Specify the transient data queue destination for all exception messages. The default is **NONE** (i.e. exception messages will not be sent to a transient data destination). Individual exception messages can be directed to customized destinations using the Exception Action Message List (I1ML) and Message Routing Attributes screen (I1MD).

Default: NONE

Range of Values: NONE or one–four character transient data queue name

Restrictions: None

SEND ACTION BOX: Specify **YES** if you want to include detailed information about each of the exception messages. These are the details contained in the Activity Box of the Online Reporting Facility. Specific exception messages can be excluded from this specification by using the Exception Action Message List (I1ML) and Message Routing Attributes screen (I1MD).

Default: NO

Range of Values: YES/NO

Restrictions: None

SEND MESSAGE IF ACTION WAS NOT TAKEN: Specify **YES** if you want to send the message even if the action was not taken (i.e., the message is followed by * NOT TAKEN *). Specific exception messages can be excluded from this specification by using the Exception Action Message List (I1ML) and Message Routing Attributes screen (I1MD).

Default: NO

Range of Values: YES/NO

Restrictions: None

MAXIMUM MESSAGE AGING (SECONDS): Specify the maximum time allowable, in seconds, between generating the message and sending it to the console and/or transient data queue destination. Specific exception messages can be customized individually by using the Exception Action Message List Screen (I1ML) and Message Routing Attributes Screen (I1MD).

Default: 120

Range of Values: 5 - 3600

Restrictions: None

Press **PF12** to access the Exception Action Message List screen. If changes were made to the Exception Message Routing screen, press **Enter** to save the changes before accessing the Exception Action Message List.

Exception Action Message List (I1ml)

The Exception Action Message List screen is used to select the exception messages that are to be individually customized with separate parameters and destinations. Messages that are highlighted will be sent to either the console or a transient data destination according to their attributes. To select an exception message from the list, type **S** in the field preceding the message code and press **Enter**. Modify the global parameter settings by typing over the entries and press **Enter** to save the changes. Press **PF3** to return to the Exception Action Message List.

To delete the customization of an exception message, type **D** in the field preceding the message code and press **Enter**. The parameters for the exception message will return to the global values set by the Exception Action Message Routing screen (I1MG). Press **PF3** to return to the Exception Action Message Routing screen.

Figure 2-8 Exception Action Message List Screen (CICS 5.2)

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL    4.100          GENERAL PARAMETERS        TIME  14:04
                                EXCEPTION ACTION MESSAGE LIST      I1ML

OPTION  ==>                                CICS APPLID = CICS52

- AC003C - AC010C - AC011C - AC013C - AC014C - AC016C - AC017C - AC018C
- AC019C - AC020C - AC021C - AC022C - AC024C - AC025C - AC027C - AC028C
- AC029C - AC040C - AC041C - AC042C - AC043C - AC044C

ENTER:  D - DELETE; S - SELECT

-----
F1= HELP  F2= SPLIT  F3= END   F4= RETURN  F5=          F6=          F7=
F8=          F9= SWAP  F10=         F11=         F12=

```

Message Routing Attributes Screen (I1md)

The Message Routing Attributes screen is used to customize the parameters for an individual exception action message. The parameters are the same as on the Exception Action Message Routing Screen (I1MG). Modify the values by typing over the entries. Press **Enter** to save the changes. Press **PF3** to return to the Exception Action Message List.

Figure 2-9 Message Routing Attributes Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL    4.100          GENERAL PARAMETERS        TIME  14:09
                                MESSAGE AC003C ROUTING ATTRIBUTES  I1MD
OPTION  ==>                                CICS APPLID = CICS52
                                                DEFAULT

SEND MESSAGES TO CONSOLE          ==>  NO          NO          (YES, NO)
TD DESTINATION TO SEND MESSAGES   ==>  CSMT        NONE
SEND ACTION BOX                   ==>  NO          NO          (YES, NO)
SEND MESSAGE IF ACTION WAS NOT TAKEN ==>  NO          NO          (YES, NO)
MAXIMUM MESSAGE AGING (SECONDS)   ==>  120         120        ( 5 - 3600 )

PRESS ENTER TO SAVE CHANGES

-----
F1= HELP  F2= SPLIT  F3= END   F4= RETURN  F5=          F6=          F7=
F8=          F9= SWAP  F10=         F11=         F12=

```

Dispatch Management Parameters Screen (I13@)

The Dispatch Management Parameters Screen is displayed when you select Dispatch Management from the Parameters Facility screen.

Figure 2-10 Dispatch Management Parameters Screen

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100              DISPATCH MANAGEMENT PARAMETERS  TIME 14:11
                                     I13@
OPTION ==>              CICS APPLID = CICS53

DISPATCH PARAMETER      ==> 4          DEFAULT 4          (0-10)
CICS CPU % UTILIZATION  ==> 10         10          (0 - 99)
AUTOSTART                ==> NO        NO          (YES, NO)
MODE                     ==> PROD      PROD        (PROD, SIML)

COUNTLIMIT              ==> 200       * INTERNAL *
BASEADJ                  ==> 2         * INTERNAL *

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT F3= END   F4= RETURN F5=      F6=      F7=
F8=        F9= SWAP  F10=      F11=      F12=

```

The Energizer for CICS Dispatch Management Parameters screen is used to set the parameters for the Dispatch Management function. The Dispatch Management function dynamically controls the number and length of MVS waits issued by CICS. When scheduling a task for execution, CICS uses a significant amount of CPU going in and out of MVS waits. The Dispatch Management function uses a proprietary algorithm to evaluate the workload and determine when and for how long CICS will issue MVS waits.

Activation of the Dispatch Management function will automatically activate the MRO Dispatch Management function with the same mode of operation, and vice versa.

DISPATCH PARAMETER: This is an internal parameter.

Default: 4

Range of Values: 0 - 10

Restrictions: This parameter should only be changed based on the recommendation of Product Support personnel.

CICS CPU % UTILIZATION: Enter the CICS CPU utilization threshold as a percentage. The Dispatch Management function will start managing the number and length of MVS waits when CICS CPU utilization exceeds this percentage.

Default: 10

Range of Values: 0 - 99

Restrictions: This parameter should only be changed based on the recommendation of Product Support personnel

AUTOSTART: Specify whether to automatically start the Dispatch Management function when the CICS region is brought up, or manually activate the function using the online Control Facility.

Note: Activation of the Dispatch Management function will automatically activate the MRO Dispatch Management function, and vice versa.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the Dispatch Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Note: Setting the mode of operation of the Dispatch Management function will set the same mode for the MRO Dispatch Management Function, and vice versa.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

INTERNAL PARAMETERS: These parameters should only be changed based on the recommendation of Product Support personnel.

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

MRO Dispatch Management Parameters Screen (I1C\$)

The MRO Dispatch Management Parameters Screen is displayed when you select **MRO Dispatch Management** from the Parameters Facility screen.

Figure 2-11 MRO Dispatch Management Parameters Screen

USERID L99087
REL 4.100

ENERGIZER/CICS
MRO DISPATCH MANAGEMENT PARAMETERS

DATE 99/08/02
TIME 14:20
I1C\$

OPTION ==>

CICS APPLID = CICS41

AUTOSTART
MODE

==> NO
==> PROD

NO
PROD

{YES, NO}
{PROD, SIML}

LIMIT1
LIMIT2
LIMIT3
LIMIT4

==> 40
==> 25
==> 2
==> 99

* INTERNAL *
* INTERNAL *
* INTERNAL *
* INTERNAL *

PRESS ENTER TO SAVE CHANGES

F1= HELP
F8=

F2= SPLIT
F9= SWAP

F3= END
F10=

F4= RETURN
F11=

F5=
F12=

F6=

F7=

The Energizer for CICS MRO Dispatch Management Parameters screen is used to set the parameters for the MRO Dispatch Management function. The MRO Dispatch Management function dynamically controls the dispatching of Multi-Region Operation (MRO) requests. MRO requests utilize considerable CPU overhead. The MRO Dispatch Management function uses a proprietary algorithm to evaluate the current workload and determine when and how often the requests are processed.

AUTOSTART: Specify whether to automatically start the MRO Dispatch Management function when the CICS region is brought up, or manually activate the function using the online Control Facility.

Note: Activation of the MRO Dispatch Management function will automatically activate the Dispatch Management function, and vice versa.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the MRO Dispatch Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Note: Setting the mode of operation of the MRO Dispatch Management function will set the same mode for the Dispatch Management function, and vice versa.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

INTERNAL PARAMETERS: These parameters should only be changed based on the recommendation of Product Support personnel.

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

MRO/ISC Queue Management Parameters Screen (I10F)

The MRO/ISC Queue Management Parameters screen is displayed when you select **MRO/ISC Queue Management** from the Parameters Facility Screen.

Figure 2-12 MRO/ISC Queue Management Parameters Screen

USERID	BCVGWJ3	ENERGIZER/CICS	DATE	01/12/12
REL	4.3.00	MRO/ISC QUEUE MANAGEMENT PARAMETERS	TIME	06:02
			I10F	
OPTION ===>		CICS APPLID = BCVCG61C DEFAULT		
MAXIMUM TASKS TO WAIT FOR A SESSION	====>	10	10	(0 - 999)
PURGE ALL WAITING TASKS DURING STRESS	====>	YES	YES	(YES, NO)
AUTOSTART	====>	NO	NO	(YES, NO)
MODE	====>	PROD	PROD	(PROD, SIML)
PRESS ENTER TO SAVE CHANGES				

F1= HELP	F2= SPLIT	F3= END	F4= RETURN	F5=
F6=	F7=	F8=	F9= SWAP	F10=
			F11=	F12=

The Energizer for CICS MRO/ISC Queue Management Parameters screen is used to set the parameters for the MRO/ISC Queue Management function. The MRO/ISC Queue Management function dynamically manages the number of tasks that can wait for an interconnected session. The use of interconnected CICS systems has solved many CICS user problems but has also introduced another potentially disastrous problem. If one CICS system has a problem, it is likely to spread to other connected systems and affect multiple users.

The Energizer for CICS queue management functions eliminate most CICS bottlenecks, potential lockouts, and sympathetic outages. However, Energizer for CICS provides an additional fail-safe mechanism to prevent problems from spreading from one CICS system to another. When CICS reaches the maximum number of tasks that can wait for an interconnected MRO/ISC session, The MRO/ISC Queue Management function will terminate any subsequent requests for this session. This action will prevent CICS from locking out because of a Short-On-Storage condition or by reaching MAXTASKS. It eliminates the threat of sympathetic outages and the massive disruption of service inherent in interconnected CICS systems.

Note: If the XZIQUE user exit is enabled in CICS, the MRO/ISC Queue Management Function will automatically terminate itself so that it will not interfere with this exit. It should be noted, however, that using this function *instead* of the XZIQUE user exit generates significantly less overhead.

Note: If the QUEUELIMIT parameter has a value other than NO in the CONNECTION definition for the remote system, the function will not handle tasks waiting for sessions to this system.

MAXIMUM TASKS TO WAIT FOR A SESSION: Specify the maximum number of tasks that will be allowed to wait for an MRO/ISC session.

Default: 10

Range of Values: 0 - 999

Restrictions: None

PURGE ALL WAITING TASKS DURING STRESS: Specify whether all waiting tasks can be purged during detected MAXTASKS or Short-On-Storage stress conditions.

Default: YES

Range of Values: YES/NO

Restrictions: None

Note: If you do not want Energizer for CICS to purge any waiting tasks, set MAXIMUM TASKS TO WAIT FOR A SESSION to **999** and PURGE ALL WAITING TASKS DURING STRESS to **NO**.

AUTOSTART: Specify whether to automatically start the MRO/ISC Queue Management function when the CICS region is brought up, or manually activate the function using the online Control Facility.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the MRO/ISC Queue Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Program Compression Management Parameters Screen (I17@)

The Program Compression Management Parameters screen is displayed when you select **Program Compression Management** from the Parameters Facility screen:

Figure 2-13 Program Compression Management Parameters Screen

```

USERID L99090          ENERGIZER/CICS          DATE 99/08/03
REL 4.10              PROGRAM COMPRESSION MANAGEMENT PARAMETERS    TIME 14:46
                                                                I17@
OPTION ==>                                CICS APPLID = CICS41
MINIMUM STORAGE FACTOR %          ==> 45      45      ( 0 - 100 )
MAXIMUM STORAGE FACTOR %          ==> 85      85      ( 0 - 100 )
HIGH DSA % UTILIZATION            ==> 85      85      ( 0 - 100 )
HIGH EDSA % UTILIZATION           ==> 95      85      ( 0 - 100 )
AUTOSTART                        ==> NO      NO      (YES, NO)
MODE                             ==> PROD   PROD   (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=

```

The Energizer for CICS Program Compression Management Parameters screen is used to set the parameters for the Program Compression Management function. This function provides dynamic DSA utilization targets for the Dynamic Program Storage Compression. It transforms the fixed CICS free storage factor into a dynamic variable.

MINIMUM STORAGE FACTOR %: Enter the minimum value for the storage factor as a percentage. This is the minimum amount of DSA that Energizer for CICS will allow for loaded programs.

Default: 45

Range of Values: 0 - 100

Restrictions: Minimum Storage Factor % must be less than Maximum Storage Factor %.

MAXIMUM STORAGE FACTOR %: Enter the maximum value for the storage factor as a percentage. This is the maximum amount of DSA that Energizer for CICS will allow for loaded programs.

Default: 85

Range of Values: 0 - 100

Restrictions: Maximum Storage Factor % must be greater than Minimum Storage Factor %.

Note: DSAs are divided into two groups: below-the-line DSAs and above-the-line DSAs. The maximum DSA utilization thresholds are not defined for each individual DSA, but rather, for each of the two groups of DSAs.

When the DSA utilization exceeds the high percentage, Energizer for CICS will cause CICS to delete the oldest inactive programs. If the DSA utilization percentage is below the threshold and no SOS condition is present, Energizer for CICS will increase the storage factor to the maximum value that is defined by the MAXIMUM STORAGE FACTOR % parameter.

The following parameter description is for all DSAs:

HIGH DSA % UTILIZATION: Enter the maximum utilization threshold of the relevant DSA as a percentage.

Default: 85 for the below-the-line DSAs

Range of Values: 0 - 99

Restrictions: None

HIGH EDSA % UTILIZATION: Maximum utilization percentage of each individual above-the-line.

Default: 95 for the above-the-line DSAs

Range of Values: 0 - 99

Restrictions: None

AUTOSTART: Specify whether to automatically start the Program Compression Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 3, "Starting and Stopping Energizer for CICS."

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the Program Compression function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Storage Management Parameters Screen

The Storage Management Parameters screen is displayed when you select **Storage Management** from the Parameters Facility screen.

Figure 2-14 Storage Management Parameters Screen

```
USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL    4.100          STORAGE MANAGEMENT PARAMETERS  TIME  14:57
                                I18@
OPTION  ===>          CICS APPLID = CICS51
                                DEFAULT

AUTOSTART          ===> NO          NO          (YES, NO)
MODE              ===> PROD         PROD         (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1=  HELP  F2=  SPLIT  F3=  END    F4=  RETURN  F5=          F6=          F7=
F8=          F9=  SWAP  F10=         F11=         F12=
```


The Energizer for CICS Storage Management Parameters screen is used to set the parameters for the Storage Management function. The Storage Management function dynamically regulates the maximum amount of storage that CICS can use for its DSAs so that short-on-storage situations can be prevented before they occur. The function dynamically increases and decreases the CICS internal parameter EDSLIMIT, which is the upper limit for the amount of storage that CICS can allocate for above-the-line DSA.

Note: Allocated storage, is released immediately when not needed. Energizer for CICS will not decrease the EDSALIMIT parameter below its original values. The maximum value of EDSALIMIT that the function will use leaves a spare amount of at least 5M of free MVS storage above the line. The function will automatically terminate itself if this spare amount is not available. It is therefore recommended to run the CICS job with a sufficiently large REGION parameter specified in the JCL.

AUTOSTART: Specify whether to automatically start the Storage Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 3, “Starting and Stopping Energizer for CICS.”.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the Storage Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

VSAM Queue Management Parameters Screen (I19@)

The VSAM Queue Management Parameters screen is displayed when you select **VSAM Queue Management** from the Parameters Facility screen.

Figure 2-15 VSAM Queue Management Parameters Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  98/03/11
REL  3.700          VSAM QUEUE MANAGEMENT PARAMETERS  TIME  14:58
                                                    I19@
OPTION  ==>          CICS APPLID = CICS51
                                DEFAULT
NUMBER OF STRINGS TO ADD          ==>  3          3          (0-99)
NUMBER OF TASKS TO WAIT FOR STRINGS ==>  3          3          (0-999)
NUM OF TASKS TO WAIT FOR LSR STR/BUFF ==>  3          3          (0-999)
CANCEL WAITING TASKS ON SDS        ==>  YES        YES        (YES, NO)
CANCEL WAITING TASKS ON MXT        ==>  YES        YES        (YES, NO)
CANCEL WAITING TASKS ON TCLASS MAXACT ==>  YES        YES        (YES, NO)
RESTORE ORIGINAL STRING NUMBER    ==>  YES        YES        (YES, NO)
FILE LIST                          ==>  EXCLUDE    EXCLUDE    (INCLUDE, EXCLUDE)
TASK LIST                          ==>  EXCLUDE    EXCLUDE    (INCLUDE, EXCLUDE)
AUTOSTART                          ==>  NO         NO         (YES, NO)
MODE                               ==>  PROD       PROD       (PROD, SIML)

NUMFATE                            ==>  100        * INTERNAL *
STLSTLN                            ==>  8          * INTERNAL *

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT F3= END   F4= RETURN F5=      F6= TSK PURGE EXCL F7=
F8=        F9= SWAP  F10= TASKS F11= FILES F12= FILE SPEC LIST

```

The Energizer for CICS VSAM Queue Management Parameters screen is used to set the parameters for the VSAM Queue Management function. The VSAM Queue Management function dynamically manages the number of concurrent VSAM file strings of CICS data sets and the number of file requests that can wait for file strings and LSR strings and buffers.

Logical resources used by CICS are predefined at system startup. Until now, they could not be increased, as needed, in real-time. If any of these resources are not immediately available, CICS puts the requesting task in a queue. These queues can keep growing because of an unexpected peak demand for a resource, or because of a slow disk response. Eventually, CICS reaches MAXTASKS or a Short-On-Storage stress condition caused by the waiting tasks. CICS is then locked out. In Multi-Region Operations, these lockouts can spread to connected regions as well. This is called a *sympathetic* outage.

The VSAM Queue Management function eliminates these bottlenecks and lockouts by dynamically adding strings, as needed, to meet unexpected demands, limiting the number of tasks waiting for strings and buffers, and terminating tasks waiting for these resources when CICS is approaching a stress condition or potential lockout. Energizer for CICS allows the user to identify specific tasks and files to be excluded or included in this queue management function and to specify tasks to be excluded from the termination process. The function also allows the user to customize the parameters individually for specific files. There are additional VSAM Queue Management Parameters screens available for these services. They are accessed via the PF keys.

NUMBER OF STRINGS TO ADD: Enter the maximum number of file strings that will be allowed to be added to the file string number after the number of active strings reaches the maximum specified for the file in the CICS File Control Table (FCT).

Default: 3

Range of Values: 0 - 99

Restrictions: None

NUMBER OF TASKS TO WAIT FOR STRINGS: Enter the maximum number of tasks that will be allowed to wait for a file string after the number of active strings reaches the maximum specified in the CICS File Control Table (FCT) and the maximum number of allowable strings have been added.

Default: 3

Range of Values: 0 - 999

Restrictions: None

NUMBER OF TASKS TO WAIT FOR LSR STRINGS/BUFFERS:
Enter the maximum number of tasks that will be allowed to wait for an LSR string before Energizer for CICS begins terminating tasks that would need to wait. The same number will also be used for LSR buffers.

Default: 3

Range of Values: 0 - 999

Restrictions: None

CANCEL WAITING TASKS ON SOS: Specify whether or not to cancel waiting tasks when CICS is Short-On-Storage (SOS), regardless of the NUMBER OF TASKS TO WAIT settings. A YES setting will terminate a task that will otherwise wait for a file string, LSR string, or an LSR buffer when CICS is SOS. Tasks listed on the Task Purge Exclusion List screens will be excluded from termination.

Default: YES

Range of Values: YES/NO

Restrictions: None

CANCEL WAITING TASKS ON MXT: Specify whether or not to cancel waiting tasks when CICS is at MAXTASKS, regardless of the NUMBER OF TASKS TO WAIT settings. A YES setting will terminate a task that will otherwise wait for a file string, LSR string, or an LSR buffer when CICS is at MAXTASKS. Tasks listed on the Task Purge Exclusion List screens will be excluded from termination.

Default: YES

Range of Values: YES/NO

Restrictions: None

CANCEL WAITING TASKS ON TCLASS MAXACT: Specify whether or not to cancel waiting tasks when CICS is at TCLASS MAXACT for that task class, regardless of the NUMBER OF TASKS TO WAIT settings. A YES setting will terminate a task that will otherwise wait for a file string, LSR string, or an LSR buffer when CICS is at TCLASS MAXACT for that task class. Tasks listed on the Task Purge Exclusion List screens will be excluded from termination.

Default: YES

Range of Values: YES/NO

Restrictions: None

Note: If you do not want Energizer for CICS to purge any waiting tasks, set the NUMBER OF TASKS TO WAIT parameters to **999** and the CANCEL WAITING TASKS parameters to **NO**.

RESTORE ORIGINAL STRING NUMBER: Specify whether or not to restore the original string values prior to the function's termination. The default value is YES. If more strings are in use at termination than originally defined, the original string value will not be restored.

Default: YES

Range of Values: YES/NO

Restrictions: None

FILE LIST: Specify whether the files listed on the File Inclusion/Exclusion List screen will be included or excluded from the VSAM Queue Management function. An EXCLUDE setting means that the files listed on the File Exclusion List will not be managed by the function. An INCLUDE setting applies VSAM Queue Management *only* to the files listed on the File Inclusion List.

Default: EXCLUDE

Range of Values: INCLUDE/EXCLUDE

Restrictions: None

TASK LIST: Specify whether the tasks listed on the Task Inclusion/Exclusion List screen will be included or excluded from the VSAM Queue Management function. An EXCLUDE setting means that the tasks listed on the Task Exclusion List will not be managed by the function. An INCLUDE setting applies VSAM Queue Management *only* to the tasks listed on the Task Inclusion List.

Default: EXCLUDE

Range of Values: INCLUDE/EXCLUDE

Restrictions: None

AUTOSTART: Specify whether to automatically start the VSAM Queue Management function when the CICS region is brought up, or manually activate the function using the online Control Facility.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the VSAM Queue Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Specify which tasks are to be excluded from termination by the function regardless of any queue lengths or system stress conditions. Enter the four-character CICS task name for each task. Use the * wildcard suffix to define generic task names. The maximum list size is determined by the maximum record size in the Parameter File. Refer to your installation of Energizer for CICS. To delete a task from the Task Purge Exclusion List, type **D** in the field preceding the task name.

Default: None

Format: One- to four-character CICS task name. Names ending with * are interpreted as generic names.

Restrictions: None

Press **Enter** to update the Parameter File. Press **PF3** to return to the VSAM Queue Management Parameters screen.

Task Inclusion/Exclusion List Screen (I19T)

Task Inclusion/Exclusion List screen is displayed when you press **PF11** on the VSAM Queue Management Parameters screen.

Specify which tasks are to be included/excluded from the VSAM Queue Management function. If the TASK LIST parameter setting is EXCLUDE, the tasks listed will not be managed by the function. If the parameter setting is INCLUDE, *only* the tasks listed will be managed by the function.

Figure 2-17 VSAM Queue Management Task Inclusion/Exclusion List Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL   4.100          VSAM QUEUE MANAGEMENT PARAMETERS  TIME  15:04
                                     TASK EXCLUSION LIST                                I19T

OPTION  ==>                                CICS APPLID = CICS51

-----
-----
-----
-----
-----
-----
-----
-----
E N D   O F   L I S T

ENTER:  D - DELETE
PRESS ENTER TO SAVE CHANGES

-----
F1=  HELP      F2=  SPLIT    F3=  END      F4=  RETURN   F5=          F6=          F7=
F8=          F9=  SWAP      F10=         F11=         F12=

```

On this screen, enter the four-character CICS task name for each task. Use the wildcard suffix * to define generic task names. The maximum list size is determined by the maximum record size in the Parameter File. Refer to your installation of Energizer for CICS. To delete a task from the Task Inclusion/Exclusion List, type **D** in the field preceding the task name.

Default: None

Format: One- to four-character CICS task name. Names ending with * are interpreted as generic names.

Restrictions: None

Press **Enter** to update the Parameter File.

Press **PF3** to return to the VSAM Queue Management Parameters screen.

File Inclusion/Exclusion List Screen (I19F)

The File Inclusion/Exclusion List screen is displayed when you press **PF12** on the VSAM Queue Management Parameters screen. Energizer for CICS allows you to customize the VSAM queue management parameters individually for the files listed on the File Specification List. A separate File Attributes screen will be displayed for each file in order to modify the default parameters.

Specify which files are to be included/excluded from the VSAM Queue Management function. If the FILE LIST parameter setting is EXCLUDE, the files listed will not be managed by the function. If the parameter setting is INCLUDE, *only* the files listed will be managed by the function.

Figure 2-18 VSAM Queue Management File Inclusion/Exclusion List Screen

[illegible]

Default: None

Restrictions: None

PF3 to return to the Queue Management Parameters screen.

Figure 2-19 VSAM Queue Management File Specification List Screen

Press **Enter** to update the Parameter File.

To modify the parameter attributes for a listed file, enter **S** in the field preceding the DDNAME and press **Enter** or **PF5** to display the File Attributes Screen for that file.

Modify the parameter settings by over typing the entries and press **Enter** to save the changes.

Press **PF6** to access the Task Purge Exclusion List screen for that file.

Press **PF3** to return to the File Specification List again.

Repeat the process for all of the selected files. Press **PF3** to return to the VSAM Queue Management Parameters screen.

Note: The line commands entered on the screen will be processed in the following order: S commands (one at a time); D commands; new files added to the list (one at a time).

Default: None

Format: One- to eight-character DDNAME. Names ending with * are interpreted as generic names.

Restrictions: None

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

File Attributes Screen (I19A/I19B)

The File Attribute parameters are the same as on the VSAM Queue Management Parameters screen (I109/I19@). Modify the parameter settings by typing over the entries.

Figure 2-20 VSAM Queue Management File Attributes Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL   4.100            VSAM QUEUE MANAGEMENT PARAMETERS  TIME  15:12
                                FILE XXXXXXXX ATTRIBUTES                                I19A

OPTION  ==>

                                CICS APPLID = CICS33
                                DEFAULT
NUMBER OF STRINGS TO ADD          ==>  3   3   (0-99)
NUMBER OF TASKS TO WAIT FOR STRINGS ==>  3   3   (0-999)
NUMBER OF TASKS TO WAIT FOR LSR STRINGS/BUF ==>  3   3   (0-999)
CANCEL WAITING TASKS ON SDS      ==>  YES YES (YES, NO)
CANCEL WAITING TASKS ON MXT      ==>  YES YES (YES, NO)
CANCEL WAITING TASKS ON CMXT     ==>  YES YES (YES, NO)
RESTORE ORIGINAL STRING NUMBER   ==>  YES YES (YES, NO)

PRESS ENTER TO SAVE CHANGES
PE364I: ADDITION(S) DONE; PARAMETER FILE UPDATED
F1= HELP   F2= SPLIT F3= END   F4= RETURN F5=      F6= TSK PURGE EXCL F7=
F8=        F9= SWAP  F10=      F11=      F12=

```

Press **PF6** to display the File Task Purge Exclusion List screen.

If you only selected this function, press **PF3** to return to the Parameters Facility screen. If you selected multiple functions, the parameter screen for the next function is displayed.

File Task Purge Exclusion List Screen (I19E)

This screen is identical to the Task Purge Exclusion List screen (I19P). Specify which tasks are to be excluded from termination by the function for the specific file regardless of any queue lengths or system stress conditions.

Figure 2-21 Task Purge Exclusion List Screen

[illegible]

Press **Enter** to save the changes.

Press **PF3** to return to the File Specifications List screen

Press **PF4** to return to the ISPF screen from which Energizer for CICS was invoked.

Press **PF5** to display the File Attributes screen.

Trace Management Parameters Screen (I10A)

Energizer for CICS displays the Trace Management Parameters screen when you select **Trace Management** from the Parameters Facility screen.

Figure 2-22 Trace Management Parameters Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL    4.100          TRACE MANAGEMENT PARAMETERS  TIME  15:16
                                                I10A

OPTION  ==>

CICS APPLID = CICS52
DEFAULT

LOW CPU % UTILIZATION  (TRACELOW) ==> 55      55      (0-99)
HIGH CPU % UTILIZATION (TRACHIGH) ==> 65      65      (0-99)
CPU                      ==> SYSTEM  SYSTEM  (CICS, SYSTEM)

AUTOSTART                ==> NO      NO      (YES, NO, AUT)
MODE                     ==> PROD   PROD   (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT F3= END   F4= RETURN F5=          F6=          F7=
F8=        F9= SWAP  F10=      F11=      F12= OPTIONS

```

The Energizer for CICS Trace Management Parameters screen is used to set the parameters for the Trace Management function. The Trace Management Function dynamically matches the use of the CICS Trace Facility to available CPU resources. Running CICS Trace can increase processing requirements by over 25% in the CICS region. During peak demand periods, this extra overhead significantly impacts both response time and throughput.

To the system programmer, the CICS Trace Facility appears as a single service that can be either turned on or off in its entirety. In reality, the facility consists of multiple subfunctions that provide varied services. As CPU utilization approaches its throughput limit, the Trace Management function automatically begins to turn off CICS Trace services, one at a time, until CPU demands can be met. These subfunctions are turned off in reverse order of relative significance in diagnosing system problems. As soon as CICS no longer needs the extra CPU resources, the deactivated subfunctions are reactivated.

The Trace Management function enables you to explicitly prioritize the CICS Trace subfunctions to determine the order in which the services will be turned off. The Trace Options Tables differ for each CICS release.

For CICS/DB2: Apply IBM APAR PN15555 (DB2 2.3) before allowing Energizer for CICS to disable writing USER entries to the Trace Table. Without the fix, set the USER Trace Option to **0**.

LOW CPU % UTILIZATION (TRACELOW): Enter the minimum CPU utilization threshold as a percentage. When the CPU usage falls below this percentage, Energizer for CICS will activate CICS trace subfunctions that it had previously turned off, in reverse order, until all the subfunctions are turned on, or until CPU utilization exceeds this threshold. Which CPU utilization to use is specified in the CPU parameter described below.

Default: 55

Range of Values: 0 - 99

Restrictions: TRACELOW must be less than TRACEHIGH.

HIGH CPU % UTILIZATION (TRACEHIGH): Enter the maximum CPU utilization threshold as a percentage. When the CPU usage exceeds this percentage, Energizer for CICS will start to shut down CICS trace subfunctions, beginning with the least important, until all the subfunctions are deactivated or until CPU utilization falls below this CPU threshold. A Trace Options Table, invoked via **PF12**, prioritizes the importance of each trace subfunction. Which CPU utilization to use is specified in the CPU parameter described below.

Default: 65

Range of Values: 0 - 99

Restrictions: TRACEHIGH must be greater than TRACELOW.

CPU: Specify which CPU utilization measurement Trace Management should use to base its decisions. For the CICS option, the Trace Management function will use the CPU utilization in the CICS region only. For the SYSTEM option, the function will use the CPU utilization in the entire system.

Default: SYSTEM

Range of Values: CICS/SYSTEM

Restrictions: This parameter determines which measurements are used in the Low and High CPU % Utilization parameters above.

Press **PF12** to access the Trace Options Table screens. The screens differ for each CICS release. The Trace Options Table is used to prioritize the CICS Trace subfunctions to determine the order in which the services will be turned off.

If changes were made to the Trace Parameters screen, press **Enter** to save the changes before accessing the Trace Options Table.

TRACE OPTIONS TABLE SCREENS (I1AT): To change the priority of a Trace Option, overwrite the priority number. The Trace Options will be turned off in ascending order of their priority number. Those with priority 1 will be deactivated first; those with priority 5 will be deactivated last. They will be reactivated in reverse order. Trace Options with priority 0 will not be deactivated at all.

Figure 2-23 Trace Options Table Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL   4.100            TRACE MANAGEMENT PARAMETERS  TIME  15:20
                                     TRACE OPTIONS TABLE                                I1AT

OPTION  ==>                                CICS APPLID = CICS33

PRESS ENTER TO SAVE CHANGES

-----
APPLICATION                1
BASIC MAPPING SUPPORT      1
COMMON PROGRAMMING INTERFACE 1
KERNEL                     1
LOCK MANAGER               1
STORAGE CONTROL            1
TASK CONTROL               1
TERMINAL CONTROL           1
USER EXIT INTERFACE        1
CICS GLOBAL CATALOG MANAGER 2
CICS LOCAL CATALOG MANAGER  2
INTERVAL CONTROL           2
JOURNAL CONTROL            2
F1=HELP   F2=SPLIT  F3=END  F4=RETURN  F5=      F6=      F7=UP
F8=DOWN   F9=SWAP   F10=    F11=      F12=

```

Note: The actual content of this screen varies depending on the CICS version.

Press **Enter** to save the changes.

Press **PF8** to access additional options on the next screens.

Press **PF7** to return to the previous screens.

Press **PF3** to return to the Trace Management Parameters screen.

AUTOSTART: Specify whether to automatically start the Trace Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. A specification of AUT will have Energizer for CICS automatically start the Trace Management function only if CICS Trace is active. If CICS Trace is not active, the function will not be started. It is important to set this parameter to AUT since it is common to incorrectly identify whether CICS Trace is active and what its level of trace is. Set this parameter to AUT even if you think CICS Trace is inactive.

Default: NO

Range of Values: YES/NO/AUT

Restrictions: None

MODE: Specify the mode of operation for the Trace Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

Press **Enter** to save the changes. A message will appear at the bottom of the screen verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameter screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

VSAM Subtask Management Parameters Screen (I10B)

The VSAM Subtask Management Parameters screen is displayed when you select VSAM Subtask Management from the Parameters Facility screen.

Figure 2-24 VSAM Subtask Management Parameters Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL   4.100          VSAM SUBTASK MANAGEMENT PARAMETERS  TIME  15:24
                                                I10B

OPTION  ==>          CICS APPLID = CICS53
                        DEFAULT

CICS CPU % FOR GET SUBTASKING  (VSCPUGET) ==> 80   80   (2-99)
CICS CPU % FOR PUT SUBTASKING  (VSCPUPUT) ==> 40   40   (0-99)

AUTOSTART                      ==> NO   NO   (YES,NO,AUT)
MODE                           ==> PROD PROD (PROD, SIML)

VKSLOPE                        ==> 2    * INTERNAL *

PRESS ENTER TO SAVE CHANGES
-----
F1=  HELP  F2=  SPLIT  F3=  END    F4=  RETURN  F5=          F6=          F7=
F8=          F9=  SWAP  F10=         F11=         F12=

```


The Energizer for CICS VSAM Subtask Management Parameters screen is used to set the parameters for the VSAM Subtask Management function. The VSAM Subtask Management function dynamically controls the use of CICS VSAM subtasking in multiprocessor environments. When a CICS region reaches maximum capacity on one processor and has spare capacity on a second processor, CICS provides an option to off load specific I/O activities for VSAM data sets, temporary storage, and transient data. Additional processor cycles are required to run both the extra subtask and the communication between the processors. CICS VSAM subtasking increases the throughput of the CICS region, but at the expense of total system processing.

The VSAM Subtask Management Function only allows CICS to off load VSAM I/O activity to other processors when the CICS region requires additional resources. When CPU utilization exceeds critical thresholds, the function allows CICS to utilize VSAM sub tasking for PUT and GET operations. It also turns off the appropriate subtask option when it calculates that the CPU usage, without the active subtask function, would fall below the minimum defined.

CICS CPU % FOR GET SUBTASKING (VSCPUGET): Enter the minimum CPU utilization threshold for VSAM GET functions as a percentage. When the CPU usage exceeds this percentage during the previous interval, Energizer for CICS will allow CICS to utilize the VSAM subtask for GET operations.

Default: 80

Range of Values: 2 - 99

Restrictions: VSCPUGET must be greater than VSCPUPUT and their difference must be greater than VKSLOPE, displayed on the screen.

CICS CPU % FOR PUT SUBTASKING (VSCPUPUT): Enter the minimum CPU utilization threshold for VSAM PUT functions as a percentage. When the CPU usage exceeds this percentage during the previous interval, Energizer for CICS will allow CICS to utilize the VSAM subtask for PUT operations.

Default: 40

Range of Values: 0 - 99

Restrictions: VSCPUPUT must be less than VSCPUGET and their difference must be greater than VKSLOPE, displayed on the screen.

AUTOSTART: Specify whether to automatically start the VSAM Subtask Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. A specification of AUT will have Energizer for CICS automatically start the VSAM Subtask Management function only if the VSAM Subtasking option of CICS is enabled. If the VSAM Subtasking option of CICS is not enabled, the function will not be started automatically. It is important to set this parameter to AUT since it is common to incorrectly identify whether VSAM Subtasking is enabled. Set this parameter to AUT even if you think the VSAM Subtasking option of CICS is not enabled.

Default: NO

Range of Values: YES/NO/AUT

Restrictions: None

MODE: Specify the mode of operation for the VSAM Subtask Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

INTERNAL PARAMETERS: These parameters should only be changed based on the recommendation of Product Support personnel.

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Maxtasks Management Parameters Screen (I1E\$)

The Maxtasks Management Parameters screen is displayed when you select **Maxtasks Management** from the Parameters Facility screen.

Figure 2-25 Maxtasks Management Parameters Screen

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             MAXTASKS MANAGEMENT PARAMETERS  TIME 15:27
                                                I10E

OPTION ==>

CICS APPLID = CICS41
DEFAULT

CICS DSA % UTILIZATION      (MXTDSAUI) ==> 90      90      (0-99)
CICS CPU % UTILIZATION      (MXTCPUUI) ==> 80      80      (0-99)
MAX VALUE OF CICS MAXTASKS  (MAXMXT)   ==> 0        0      (0, 5-999)
MIN VALUE OF CICS MAXTASKS  (MINMXT)   ==> 0        0      (0, 5-999)
DECREASE BELOW ORIGINAL MAXTASKS VALUE ==> NO      NO      (YES, NO)
STARTING VALUE OF CICS MAXTASKS (ORGMXT) ==> 0        0      (0, 5-999)

AUTOSTART ==> NO      NO      (YES, NO)
MODE ==> PROD      PROD      (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=      F11=      F12=

```

The Energizer for CICS Maxtasks Management Parameters screen is used to set the parameters for the Maxtasks Management function. The Maxtasks Management function dynamically regulates the maximum number of tasks that can be concurrently handled by CICS. It adjusts the Maximum Number of Tasks specification (MAXTASKS) according to a CPU utilization threshold, a DSA utilization threshold, short-on-storage and MAXTASKS conditions, or if the current number of tasks is approaching MAXTASKS. The maximum CICS DSA % Utilization threshold applies to measurements of all DSAs.

CICS DSA % UTILIZATION (MXTDSAUI): Enter the CICS DSA utilization threshold as a percentage. When a MAXTASKS condition occurs and there is no SOS condition, if CICS DSA utilization is below this threshold and CICS CPU utilization is below the CPU utilization threshold given below, Energizer for CICS will increase MXT. This percentage applies to utilization measurements of above-the-line DSAs. For below-the-line DSAs, an implicit lower threshold value (5% less) is applied. In any case, the threshold value for below-the-line DSAs will not exceed 85%.

Default: 90

Range of Values: 0 - 99

Restrictions: None

CICS CPU % UTILIZATION (MXTCPUU): Enter the CPU utilization threshold as a percentage. When a MAXTASKS condition occurs and there is no SOS condition, if CICS CPU utilization is below this threshold and CICS DSA utilization is below the DSA threshold given above, Energizer for CICS will increase MXT.

Default: 80

Range of Values: 0 - 99

Restrictions: None

MAX VALUE OF CICS MAXTASKS (MAXMXT): Enter the maximum value for MAXTASKS. This is the maximum value that Energizer for CICS will be allowed to assign to MXT. A parameter setting of 0 will set the value to 150% of the original CICS MXT.

Default: 0

Range of Values: 0 or 5-999

Restrictions: None

MIN VALUE OF CICS MAXTASKS (MINMXT): Enter the minimum value for MAXTASKS. This is the minimum value that Energizer for CICS will be allowed to assign to MXT. A parameter setting of 0 will set the value to 50% of the original CICS MXT.

Default: 0

Range of Values: 0 or 5-999

Restrictions: None

DECREASE BELOW ORIGINAL MAXTASKS VALUE: Specify whether the function can reduce the value of MXT below its value when the function was activated.

Default: NO

Range of Values: YES/NO

Restrictions: None

STARTING VALUE OF CICS MAXTASKS (ORGMXT): Enter the starting value of MXT to be assigned by the function. A parameter setting of 0 will start with the MXT value when the function was activated.

Default: 0

Range of Values: 0 or 5-999

AUTOSTART: Specify whether to automatically start the Maxtasks Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 3, “Starting and Stopping Energizer for CICS”.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the Maxtasks Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Temporary Storage Queue Management Parameters Screen (I10G)

The Temporary Storage Queue Management Parameters screen is displayed when you select Temporary Storage Queue Management from the Parameters Facility screen.

Figure 2-26 Temporary Storage Queue Management Parameters Screen

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100      TEMPORARY STORAGE QUEUE MANAGEMENT PARAMETERS  TIME 15:28
                                                    I10G

OPTION ===>                                CICS APPLID = CICS52
                                           DEFAULT

MAXIMUM NUMBER OF TS STRINGS TO ADD      ===> 3      3      (0 - 99)
MAXIMUM NUMBER OF TS BUFFERS TO ADD      ===> 3      3      (0 - 99)
MAXIMUM TASKS TO WAIT FOR TS STRING/BUFF ===> 5      5      (0 - 999)
PURGE ALL WAITING TASKS DURING STRESS    ===> YES    YES    (YES, NO)

AUTOSTART                                ===> NO      NO      (YES, NO)
MODE                                     ===> PROD    PROD    (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=

```

The Energizer for CICS Temporary Storage Queue Management Parameters screen is used to set the parameters for the Temporary Storage Queue Management function. The Temporary Storage Queue Management function

- dynamically manages the number of concurrent Temporary Storage (TS) strings and buffers
- dynamically limits the number of tasks waiting for TS strings and buffers when these resources cannot be added
- terminates tasks waiting for these resources when CICS is approaching a stress condition or potential lockout

MAXIMUM NUMBER OF TS STRINGS TO ADD: Enter the maximum number of strings that will be allowed to be added after the number of active Temporary Storage strings reaches the maximum specified in the System Initialization Table (SIT) or in the CICS startup overrides.

Default: 3

Range of Values: 0 - 99

Restrictions: None

MAXIMUM NUMBER OF TS BUFFERS TO ADD: Enter the maximum number of buffers that will be allowed to be added after the number of used Temporary Storage buffers reaches the maximum specified in the System Initialization Table (SIT) or in the CICS startup overrides.

Default: 3

Range of Values: 0 - 99

Restrictions: None

MAXIMUM TASKS TO WAIT FOR TS STRINGS/BUFF: Enter the maximum number of tasks that will be allowed to wait for Temporary Storage strings. The same number will also be used for Temporary Storage buffers.

Default: 5 for CICS 4.1 and 5.2 and later

Range of Values: 0 - 999

Restrictions: None

PURGE ALL WAITING TASKS DURING STRESS: Specify whether all tasks waiting for Temporary Storage strings or buffers can be purged during MXT, AMXT, or SOS stress conditions regardless of the MAXIMUM TASKS TO WAIT parameter setting.

Default: YES for CICS 4.1 and 5.2 and later

Range of Values: YES/NO

Restrictions: None

Note: If you do not want Energizer for CICS to purge any waiting tasks, set NUMBER OF TASKS TO WAIT to **999** and PURGE ALL WAITING TASKS to **NO**.

AUTOSTART: Specify whether to automatically start the Temporary Storage Queue Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 3, “Starting and Stopping Energizer for CICS”.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the Temporary Storage Queue Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Transient Data Queue Management Parameters Screen (I1H\$)

Energizer for CICS displays the Transient Data Queue Management Parameters Screen, shown in Figure 2-27, when you select Transient Data Queue Management from the Parameters Facility screen.

Figure 2-27 Transient Data Queue Management Parameters Screen

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100      TRANSIENT DATA QUEUE MANAGEMENT PARAMETERS  TIME 15:30
                                                    I10H

OPTION ==>                                CICS APPLID = CICS52
                                           DEFAULT

MAXIMUM NUMBER OF TD STRINGS TO ADD      ==> 3      3      (0 - 99)
MAXIMUM NUMBER OF TD BUFFERS TO ADD      ==> 3      3      (0 - 99)
MAXIMUM TASKS TO WAIT FOR TD STRING/BUFF ==> 5      5      (0 - 999)
PURGE ALL WAITING TASKS DURING STRESS    ==> YES    YES    (YES, NO)

AUTOSTART                                ==> NO      NO      (YES, NO)
MODE                                     ==> PROD    PROD    (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=
  
```


The Energizer for CICS Transient Data Queue Management Parameters screen is used to set the parameters for the Transient Data Queue Management function. The Transient Data Queue Management function dynamically manages the number of concurrent Transient Data (TD) strings and buffers, dynamically limits the number of tasks waiting for TD strings and buffers when these resources cannot be added, and terminates tasks waiting for these resources when CICS is approaching a stress condition or potential lockout.

MAXIMUM NUMBER OF TD STRINGS TO ADD: Enter the maximum number of strings that will be allowed to be added after the number of active Transient Data strings reaches the maximum specified in the System Initialization Table (SIT) or in the CICS startup overrides.

Default: 3

Range of Values: 0 - 99

Restrictions: None

MAXIMUM NUMBER OF TD BUFFERS TO ADD: Enter the maximum number of buffers that will be allowed to be added after the number of used Transient Data buffers reaches the maximum specified in the System Initialization Table (SIT) or in the CICS startup overrides.

Default: 3

Range of Values: 0 - 99

Restrictions: None

MAXIMUM TASKS TO WAIT FOR TD STRINGS/BUFF: Enter the maximum number of tasks that will be allowed to wait for Transient Data strings. The same number will also be used for transient data buffers.

Default: 5 for CICS 4.1 and 5.2 and later

Range of Values: 0 - 999

Restrictions: None

PURGE ALL WAITING TASKS DURING STRESS: Specify whether all tasks waiting for Transient Data strings or buffers can be purged during detected MXT, AMXT, or SOS stress conditions, regardless of the MAXIMUM TASKS TO WAIT parameter setting.

Default: YES for CICS 4.1 and 5.2 and later

Range of Values: YES/NO

Restrictions: None

Note: If you do not want Energizer for CICS to purge any waiting tasks, set NUMBER OF TASKS TO WAIT to **999** and PURGE ALL WAITING TASKS to **NO**.

AUTOSTART: Specify whether to automatically start the Transient Data Queue Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 3.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the Transient Data Queue Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Task Time-Out Management Parameters Screen (I10I)

Energizer for CICS displays the Task Time-Out Management Parameters screen when you select Task Time-Out Management from the Parameters Facility screen.

Figure 2-28 Task Time-Out Management Parameters Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL   4.100          TASK TIME-OUT MANAGEMENT PARAMETERS  TIME  15:33
                                                    I10I

OPTION  ==>

CICS APPLID = CICS51
DEFAULT

MAXIMUM TASK DURATION (0.1 SECONDS)  ==>  600      600      (60 - 36000)
MAXIMUM TASK DURATION ON STRESS      ==>  600      600      (60 - 36000)
CANCEL AFTER TIME-OUT                ==>  NO       NO       (YES, NO)
CANCEL ONLY ON STRESS                 ==>  NO       NO       (YES, NO)
DETAILED MESSAGES                     ==>  YES      YES      (YES, NO)

AUTOSTART                             ==>  NO       NO       (YES, NO)
MODE                                  ==>  PROD     PROD     (PROD, SIML)

PRESS ENTER TO SAVE CHANGES

-----
F1=  HELP      F2=  SPLIT  F3=  END      F4=  RETURN  F5=          F6=          F7=
F8=          F9=  SWAP   F10=         F11=         F12=  AGETABLE
  
```

The Energizer for CICS Task Time-Out Management Parameters screen is used to set the parameters for the Task Time-Out Management function. The Task Time-Out Management function dynamically purges active or waiting CICS transactions that have passed their allowable duration. This time-out function now allows CICS to synchronize its transaction processing with the time-out features of external client servers. The Task Time-Out Management Parameters screen globally sets the parameters for all tasks handled by the function. An Energizer for CICS Task Age Table is available for customizing the parameters individually for specific tasks.

MAXIMUM TASK DURATION (0.1 SECONDS): Specify the default maximum duration, in increments of 0.1 seconds, for all the tasks handled by the function. If CANCEL AFTER TIME-OUT is YES, Energizer for CICS will purge the active or waiting task when it has exceeded this duration. This default duration can be overwritten for a specific task on the Task Age Table screen.

Default: 600

Range of Values: 60 - 36000

Restrictions: None

MAXIMUM TASK DURATION ON STRESS: Specify the default maximum duration, in 0.1 seconds, for all the tasks handled by the function when CICS is under stress. If CANCEL ONLY ON STRESS is YES, Energizer for CICS will purge the active or waiting task when it has exceeded this duration and CICS is at a stress condition. This default duration can be overwritten for a specific task on the Task Age Table screen.

Default: 600

Range of Values: 60 - 36000

Restrictions: None

CANCEL AFTER TIME-OUT: Specify whether, by default, to purge or not to purge all active and waiting tasks handled by the function when they have exceeded their duration as specified by the MAXIMUM TASK DURATION parameter. The default parameter setting is NO. The default setting can be overwritten for specific tasks on the Task Age Table screen.

Default: NO

Range of Values: YES/NO

Restrictions: CANCEL AFTER TIME-OUT and CANCEL ONLY ON STRESS cannot both be YES.

CANCEL ONLY ON STRESS: Specify whether, by default, to purge or not to purge all active and waiting tasks handled by the function when they have exceeded their duration as specified by the MAXIMUM TASK DURATION ON STRESS parameter *only* when CICS is at a stress condition. The default parameter setting is NO. The default setting can be overwritten for specific tasks on the Task Age Table screen.

Default: NO

Range of Values: YES/NO

Restrictions: CANCEL AFTER TIME-OUT and CANCEL ONLY ON STRESS cannot both be YES.

DETAILED MESSAGES: Specify whether to create detail activity records on the Report File for each task purged or to only create a summary record with the total number of tasks purged by the function at a specific activation.

Default: YES

Range of Values: YES/NO

Restrictions: None

AUTOSTART: Specify whether to automatically start the Task Time-Out Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 3, “Starting and Stopping Energizer for CICS”.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the Task Time-Out Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

Press **PF12** to access the Task Age Table screen.

If changes were made to the parameters screen, press **Enter** to save the changes before accessing the Task Age Table.

Task Age Table Screen (I1IT)

Use this screen to specify which tasks are to be customized individually with separate parameters. Enter the four-character task name for each task. Use the wildcard suffix * to define generic task names. Enter additional identification for the task, if appropriate, including the terminal ID and system name. Indicate whether the task should be purged whenever it exceeds its maximum duration or only when it exceeds its duration when CICS is under stress. Modify the default MAXIMUM TASK DURATION and MAXIMUM TASK DURATION ON STRESS, if necessary.

Figure 2-29 Task Age Table Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL  4.100          TASK TIME-OUT MANAGEMENT PARAMETERS  TIME  15:38
                                     TASK AGE TABLE                                I11T

OPTION  ==>

TASK NAME  TERM ID  SYSTEM NAME  CANCEL AFTER  CANCEL ONLY ON  CICS APPLID = CICS51
                                     TIME-OUT      STRESS      MAXIMUM DURATION  MAXIMUM
                                     TIME-OUT      STRESS      (0.1 SEC)      DURATION
                                     TIME-OUT      STRESS      (0.1 SEC)      ON STRESS

*_____ *_____ *_____ N          N          600          600
_ AC22    *_____ *_____ Y          N          600          600

ENTER:  D - DELETE ENTRY ;  PF12:  ADD LINES

-----
F1= HELP  F2= SPLIT  F3= END    F4= RETURN  F5=          F6=          F7=
F8=          F9= SWAP  F10=         F11=         F12= ADDLINES

```

Table 2-1 Task Age Table Screen Parameters

Task	Description
TASK NAME	One- to four-character CICS task name in local system. Names ending with * are interpreted as generic names.
TERM ID	One- to four-character terminal identification in local system. Names ending with * are interpreted as generic names.
SYSTEM NAME	One- to four-character system name of system initiating the task. Names ending with * are interpreted as generic names.

Note: These parameters have the same rules as the parameters for the Task Time-out Management Screen.

Press **PF12** to add additional tasks. Enter the task identification and press **Enter**. Modify the default parameters by typing over the entries. To delete a task from the Task Age Table, type **D** in the field preceding the task name. Press **Enter** to update the Parameter File. Press **PF3** to return to the parameters screen.

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

Transaction Class Management Parameters Screen (I10J)

Energizer for CICS displays the Transaction Class Management Parameters Screens I10J when you select Transaction Class Management from the Parameters Facility screen.

Figure 2-30 Transaction Class Management Parameters Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL   4.100          TRANSACTION CLASS MANAGEMENT PARAMETERS  TIME  15:40
                                                    I10J

OPTION  ==>

                                CICS APPLID = CICS53
                                DEFAULT
LOW CPU % UTILIZATION          ==> 85      85      (0 - 99)
HIGH CPU % UTILIZATION         ==> 95      95      (0 - 99)
LOW DSA % UTILIZATION          ==> 88      88      (0 - 99)
HIGH DSA % UTILIZATION         ==> 92      92      (0 - 99)
MIN VALUE OF MAXACTIVE         ==> 0       0       (0, 1 - 999)
MAX VALUE OF MAXACTIVE         ==> 0       0       (0, 1 - 999)
MIN VALUE OF PURGETHRESH       ==> 0       0       (0, 1 - 1000000)
MAX VALUE OF PURGETHRESH       ==> 0       0       (0, 1 - 1000000)
TRANSACTION CLASS PRIORITY     ==> 0       0       (0, 1 - 255)
UTILIZATION TO USE             ==> DSA     DSA     (CPU, DSA, BOTH)
MODIFICATION INDICATOR         ==> YES     YES     (YES, NO)
TASK LIST                     ==> EXCLUDE EXCLUDE (INCLUDE, EXCLUDE)
AUTOSTART                     ==> NO      NO      (YES, NO)
MODE                          ==> PRODD   PRODD   (PRODD, SIML)

PRESS ENTER TO SAVE CHANGES

-----
F1=  HELP   F2=  SPLIT  F3=  END    F4=  RETURN  F5=          F6=          F7=
F8=          F9=  SWAP   F10= TASKS  F11=          F12= TCLTABLE

```

The Energizer for CICS Transaction Class Management Parameters screen is used to set the parameters for the Transaction Class Management function. This function dynamically regulates the maximum number of tasks that CICS can consider for dispatching from a specific transaction class according to CICS resources. When CPU or DSA utilization exceeds maximum thresholds, CICS is in a short-on-storage or MAXTASKS condition, or the current number of tasks in a transaction class approaches MAXACTIVE, Energizer for CICS reduces the MAXACTIVE limit for that class until the resources are again within the specified limits. When resources fall below minimum thresholds and CICS is approaching the MAXACTIVE limit for a transaction class, the function increases the limits for that transaction class.

Note: Monitor transactions from ISV's monitor products should be excluded. See "Task Inclusion/Exclusion List Screen (I1JT)" on page 2-71.

The Transaction Class Management function also regulates the number of transactions allowed to wait (PURGETHRESH) when the class is at MAXACTIVE, and allows you to define a priority for each transaction class. You can also identify specific tasks to be excluded or included in this management function. For transactions that are not in any class, Energizer for CICS creates a default class named ECTRANCL. The MAXACTIVE limit of this class will be initially set to 999, and its PURGETHRESH limit will be set to 0.

Note: The function will not take any actions if the CPU utilization of CICS is below 10%. Also, the function will not handle transaction classes with a MAXACTIVE setting of 0 or 1.

The Transaction Class Management Parameters screen sets the parameters globally for *all* transaction classes. The Transaction Class List and Transaction Class Attributes screens are used to customize the parameters individually for specific transaction classes. The MODIFICATION INDICATOR parameter is used to include/exclude transaction classes from this function. The default setting is YES, indicating that the function will modify the internal parameters for all transaction classes in the CICS system. To exclude a transaction class from modification by the function, enter the class on the Transaction Class List and set its MODIFICATION INDICATOR to **NO** on its Transaction Class Attributes screen.

LOW CPU % UTILIZATION: Enter the minimum CPU utilization threshold as a percentage. When the CICS CPU utilization falls below this percentage and the UTILIZATION TO USE parameter is CPU or BOTH, and the DSA utilization is below the DSA threshold given below, Energizer for CICS will gradually increase the MAXACTIVE and/or PURGETHRESH values for the transaction class to the maximum values as specified below.

Default: 85

Range of Values: 0 - 99

Restrictions: Low CPU % must be less than HIGH CPU %

HIGH CPU % UTILIZATION: Enter the maximum CPU utilization threshold as a percentage. When the CICS CPU utilization exceeds this percentage and the UTILIZATION TO USE parameter is CPU or BOTH, Energizer for CICS will decrease the MAXACTIVE and/or PURGETHRESH values for the transaction class until the CPU usage falls below this threshold.

Default: 95

Range of Values: 0 - 99

Restrictions: HIGH CPU % must be greater than LOW CPU %

LOW DSA % UTILIZATION: Enter the minimum DSA utilization threshold as a percentage. When the CICS DSA utilization falls below this percentage and the UTILIZATION TO USE parameter is DSA or BOTH, and the CPU utilization is below the CPU threshold given above, Energizer for CICS will gradually increase the MAXACTIVE and/or PURGETHRESH values for the transaction class to its maximum value as specified below.

This percentage applies to utilization measurements of above-the-line DSAs. For below-the-line DSAs, an implicit lower threshold value (4 percent less) is applied. In any case, the threshold value for below-the-line DSAs will not exceed 84%.

Default: 88

Range of Values: 0 - 99

Restrictions: Low DSA % must be less than HIGH DSA %

HIGH DSA % UTILIZATION: Enter the maximum DSA utilization threshold as a percentage. When the CICS DSA utilization exceeds this percentage, and the UTILIZATION TO USE parameter is DSA or BOTH, Energizer for CICS will decrease the MAXACTIVE and/or PURGETHRESH values for the transaction class until the DSA usage falls below this threshold.

This percentage applies to utilization measurements of above-the-line DSAs. For below-the-line DSAs, an implicit lower threshold value (4% less) is applied. In any case, the threshold value for below-the-line DSAs will not exceed 88%.

Default: 92

Range of Values: 0 - 99

Restrictions: HIGH DSA % must be greater than LOW DSA %

MIN VALUE OF MAXACTIVE: Enter the minimum value for the MAXACTIVE limit of the transaction class. This is the minimum value that Energizer for CICS will be allowed to assign to MAXACTIVE. A parameter setting of 0 will set the value to 50% of the original MAXACTIVE of the class.

Default: 0

Range of Values: 0 or 1-999

Restrictions: If MIN VALUE OF MAXACTIVE is set to 0, MAX VALUE OF MAXACTIVE must also be set to 0, and vice versa.

MAX VALUE OF MAXACTIVE: Enter the maximum value for the MAXACTIVE limit of the transaction class. This is the maximum value that Energizer for CICS will be allowed to assign to MAXACTIVE. A parameter setting of 0 will set the value to 150% of the original MAXACTIVE of the class.

Default: 0

Range of Values: 0 or 1-999

Restrictions: If MIN VALUE OF MAXACTIVE is set to 0, MAX VALUE OF MAXACTIVE must also be set to 0, and vice versa

MIN VALUE OF PURGETHRESH: Enter the minimum value for the purge threshold limit of the transaction class. This is the minimum value that Energizer for CICS will be allowed to assign to the PURGETHRESH limit of the class.

A parameter setting of 0 will set the value as follows:

- If the original PURGETHRESH for the class is greater than 0, the value will be set to 50% of the original PURGETHRESH.
- If the original PURGETHRESH for the class is 0, the value will be set to 1.

Default: 0

Range of Values: 0 or 1-1000000

Restrictions: If MIN VALUE OF PURGETHRESH is set to 0, MAX VALUE OF PURGETHRESH must also be set to 0, and vice versa

MAX VALUE OF PURGETHRESH: Enter the maximum value for the purge threshold limit of the transaction class. This is the maximum value that Energizer for CICS will be allowed to assign to the PURGETHRESH limit of the class.

A parameter setting of 0 will set the value as follows :

- If the original PURGETHRESH for the class is greater than 0, the value will be set to 150% of the original PURGETHRESH.
- If the original PURGETHRESH for the class is 0, the value will be set to 1000000

Default: 0

Range of Values: 0 or 1-1000000

Restrictions: If MIN VALUE OF PURGETHRESH is set to 0, MAX VALUE OF PURGETHRESH must also be set to 0, and vice versa.

TRANSACTION CLASS PRIORITY: Enter the priority number for the transaction class relative to other transaction classes in the CICS system. This number determines the order in which Energizer for CICS will process the transaction classes. A parameter setting of 0 will set the value to that of the highest priority task belonging to the transaction class.

Default: 0

Range of Values: 0 or 1 - 255

Restrictions: None

UTILIZATION TO USE: Specify which type of utilization measurement the Transaction Class Management function should use for its decisions; CPU Utilization, DSA Utilization, or BOTH.

Default: DSA

Range of Values: CPU/DSA/BOTH

Restrictions: None

MODIFICATION INDICATOR: Specify whether to include all the transaction classes in this function. The default is YES, indicating that the function will modify the internal parameters for *all* transaction classes in the CICS system. To exclude a transaction class from modification by the function, enter the class name on the Transaction Class List and set its MODIFICATION INDICATOR to **NO** on its Attributes screen. To globally exclude all transaction classes from modification, set this parameter to **NO**. Use the Transaction Class List and MODIFICATION INDICATOR on the Attributes screen to specify which transaction classes are to be modified.

Default: YES

Range of Values: YES/NO

Restrictions: None

TASK LIST: Specify whether the tasks listed on the Task List screen will be included or excluded from the Transaction Class Management function. An EXCLUDE setting means that the tasks listed will not be managed by the function. An INCLUDE setting applies the Transaction Class Management only to the tasks listed.

Default: EXCLUDE

Range of Values: INCLUDE/EXCLUDE

Restrictions: None

AUTOSTART: Specify whether to automatically start the Transaction Class Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 3.

Default: NO

Range of Values: YES/NO

Restrictions: None

MODE: Specify the mode of operation for the Transaction Class Management Function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

Default: PROD

Range of Values: PROD/SIML

Restrictions: None

If changes were made to the parameters, press **Enter** to save them.

Press **PF10** to access the Task Inclusion/Exclusion List screen. If the TASK LIST parameter setting is EXCLUDE, the Task Exclusion List Screen will be displayed. If the TASK LIST parameter setting is INCLUDE, the Task Inclusion List Screen will be displayed.

At the Transaction Class Management Parameters screen, press **Enter** to save the changes. A message will appear at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameter screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

To access the Transaction Class List screen, press **PF12**. If changes were made to the parameters screen, press **Enter** to save the changes before accessing the Transaction Class List.

Task Inclusion/Exclusion List Screen (I1JT)

Use this screen to specify which tasks are to be included/excluded from the Transaction Class Management function. If the TASK LIST parameter setting is EXCLUDE, the tasks listed will not be managed by the function. If the parameter setting is INCLUDE, *only* the tasks listed will be managed by the function.

Figure 2-31 Transaction Class Management Task Inclusion/Exclusion List Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL   4.100          TRANSACTION CLASS MANAGEMENT PARAMETERS  TIME  15:43
                                     TASK EXCLUSION LIST              I1JT

OPTION  ===>                                CICS APPLID = CICS41

- - - - -
- - - - -

ENTER:  D - DELETE
PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT  F3= END   F4= RETURN  F5=       F6=       F7=
F8=        F9= SWAP   F10=      F11=      F12=

```

Enter the four-character CICS task name for each task. Use the wildcard suffix * to define generic task names. The maximum list size is determined by the maximum record size in the Parameter File. Refer to your installation of Energizer for CICS. To delete a task from the Task Inclusion/Exclusion List, enter **D** in the field preceding the task name. Press **Enter** to update the Parameter File. Press **PF3** to return to the parameters screen.

Default: None

Format: One- to four-character CICS task name. Names ending with * are interpreted as generic names.

Restrictions: None

Transaction Class List Screen (I1JL)

The Transaction Class List Screen is used to specify and select which transaction classes are to be individually customized.

Figure 2-32 Transaction Class List Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL    4.100          TRANSACTION CLASS MANAGEMENT PARAMETERS  TIME  15:49
                                TRANSACTION CLASS LIST              I1JL

OPTION  ===>                                CICS APPLID = CICS51

_ ECTRANCL _ CLASSA _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

ENTER:  S - SELECT; D - DELETE
PRESS ENTER TO SAVE CHANGES
-----
F1=  HELP  F2=  SPLIT  F3=  END    F4=  RETURN  F5=          F6=
F7=          F8=          F9=          F10=         F11=         F12=

```

To add a transaction class to the list, enter the one- to eight-character transaction class name and press **Enter**. To select a transaction class for customization, enter **S** in the field preceding the name and press **Enter**. Modify the parameter settings on the Transaction Class Attributes screen by typing over the entries and press **Enter** to save the changes. Press **PF3** to return to the Transaction Class List or to the next selected transaction class.

To delete the customization of a transaction class, enter **D** in the field preceding the name and press **Enter**. The parameter settings for the transaction class will return to the global values set by the Transaction Class Management Parameter screen.

Press **PF3** to return to the Transaction Class Management Parameters screen.

Transaction Class Attributes (I1JC)

The Transaction Class Attributes Screen is used to customize the parameters for an individual transaction class. The parameters are the same as on the Transaction Class Management Parameters screen (I10J).

Figure 2-33 Transaction Class Attributes Screen

```
USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL   4.100          TRANSACTION CLASS MANAGEMENT PARAMETERS  TIME  15:51
                                TRANSACTION CLASS CLASSB  ATTRIBUTES      I1JC

OPTION  ==>                                CICS APPLID = CICS51
                                           DEFAULT

MIN VALUE OF MAXACTIVE                ==>  0      0      (0, 1 - 999)
MAX VALUE OF MAXACTIVE                ==>  0      0      (0, 1 - 999)
MIN VALUE OF PURGETHRESH              ==>  0      0      (0, 1 - 1000000)
MAX VALUE OF PURGETHRESH              ==>  0      0      (0, 1 - 1000000)
TRANSACTION CLASS PRIORITY            ==>  0      0      (0, 1 - 255)
MODIFICATION INDICATOR                ==>  YES    YES    (YES, NO)

PRESS ENTER TO SAVE CHANGES
-----
F1=  HELP   F2=  SPLIT  F3=  END   F4=  RETURN  F5=          F6=          F7=
F8=          F9=  SWAP   F10=       F11=         F12=          F13=
```

Modify the values by typing over the entries. To include/exclude a transaction class for/from modification by the function, set the MODIFICATION INDICATOR to YES/NO, respectively. Press **Enter** to save the changes.

If you selected only this transaction calls, press **PF3** to return to the Transaction Class Management Parameters screen. If you selected multiple transaction classes, the parameter screen for the next transaction class will be displayed instead.

Chapter 3 Starting and Stopping Energizer for CICS

Energizer for CICS requires no user intervention to provide maximum CICS performance. It allows you to automatically start each function, or all of the functions, whenever CICS is initiated. Energizer for CICS also allows you to manually activate and deactivate the functions individually, in any mode of operation, and temporarily change their parameter settings as needed. When a function is activated manually in the CICS region by using the online Control Facility, it is active only during the current session of CICS. It can be deactivated manually online or automatically when CICS is shut down. Energizer for CICS also allows you to view the current status of an active function with the Control Facility.

The Energizer for CICS Control Facility also provides a means of testing a function without actually performing the relevant operation. The Simulation Mode option of each function will report on the proposed activities, as they are needed, without actually implementing their operations. You can view the results of these actions using the Energizer for CICS Online and Batch Reporting Facilities. See Chapters 4 and 5, respectively.

Considerations

- Be sure to follow all the installation steps described in *Getting Started With Energizer for CICS* before activating any functions.
- Remember that both the CICS component and the Reporting Address Space of Energizer for CICS require the Energizer for CICS CLOSE TYPE=T SVC to be installed. None of these components will start without the Energizer for CICS SVC routine.

- The Energizer for CICS Reporting Address Space verifies the BMC Software license information. The Reporting Address Space must be started before the CICS component will initialize. Once license information is verified, the Reporting Address Space can be stopped and the CICS component will initialize without errors.
- Due to VSAM restrictions BMC Software recommends that you activate the Energizer for CICS Reporting Address Space *before* activating the Energizer for CICS functions in CICS. In addition, it is also recommended to terminate the Reporting Address Space about 60 seconds *after* deactivating the Energizer for CICS functions in CICS.

Automatic Startup

The functions of Energizer for CICS can be set up to start automatically:

- The Reporting function is activated when the Energizer for CICS Reporting Address Space is started. This function can be set up to start automatically when the operating system starts.
- The Management functions can be automatically started when the CICS region starts.

Reporting Address Space

The Energizer for CICS Reporting Address Space provides a reporting platform for the rest of the product. It writes to the Report File all Energizer for CICS activities, which can then be continuously reviewed online under CICS and TSO. (The report data may also be viewed and summarized by using the Batch Report Facility.) The Reporting Address Space also verifies product licenses.

The Energizer for CICS Reporting Address Space can be automatically started as part of the dynamic installation of the Energizer for CICS CLOSE TYPE=T SVC. Use the sample JCL that is provided in the Energizer for CICS sample library BBSAMP member ECSJSIRP. If the optional PROCNAME keyword is specified in the PARM or SYSIN statements of this JCL, a start command will be issued for the specified procedure, thereby activating the Energizer for CICS Reporting Address Space. See “Dynamic SVC Install and Table Maintenance” on page 2-15.

To ensure the successful automatic activation of the Reporting Address Space (and all other Energizer for CICS components), BMC Software recommends that you add the ECSJSIRP JCL as part of the IPL procedure.

CICS Functions

Activating the automatic startup feature of the CICS functions consists of the following:

Step 1 In CICS, execute module P100PEPI by using one of the following methods:

- Use member ECSCPLTS from the Energizer for CICS sample library BBSAMP to add the Energizer for CICS startup program to the CICS startup PLT (PLTPI).
- Activate the **PEPI** transaction of Energizer for CICS from a sequential terminal.

Step 2 In the Energizer for CICS TSO/ISPF interface:

- A. To automatically activate all functions, set the AUTOSTART parameter to **YES** on the General Parameters Screen for this CICS region in the Parameters Facility, Option 1 on the Primary Menu. The default for this parameter is **NO**. A YES setting will override all the individual function settings and automatically activate all functions when CICS is brought up in the region. See Chapter 2, “Customizing Energizer for CICS”.
- B. To automatically activate only specific functions, set the AUTOSTART parameter to **NO** on the General Parameters screen and set the parameter to **YES** on each of the individual function screens that you want automatically activated. See Chapter 2, “Customizing Energizer for CICS”.
- C. Specify the mode of operation for all the activated functions by modifying the global MODE parameter on the General Parameters screen, if necessary. **PROD** sets all the functions to production mode; all activated functions will report and perform the adjustments to the system as needed. **SIML** sets all the functions to simulation mode; the activated functions will only report the proposed actions to the Report File. The actions will not actually be implemented. The default setting for the global parameter is PROD.

The default setting for all the functions is also PROD.

Note: In order to restrict a function from making adjustments to the system, change the MODE setting for that function to SIML on the individual function screen. The MODE setting for each function will override the global parameter on the General Parameters screen. See Chapter 2, “Customizing Energizer for CICS”.

- D. If you wish to temporarily change the parameters of an active function or manually start an inactive function, use the Control Facility in the CICS User Interface. The parameter changes will take effect immediately and will be in effect until the function is deactivated. See *Getting Started with Energizer for CICS*.

Automatic Shutdown

The product's CICS functions can be automatically shutdown at CICS termination or manually deactivated via the Control Facility.

- The Energizer for CICS functions will automatically be deactivated within 30 seconds of a non-immediate CICS shutdown command.
- To deactivate all functions immediately at CICS termination, use member ECSCPLTS from the BBSAMP sample library to add the Energizer for CICS termination program to the CICS shutdown PLT (PLTSD). See *Getting Started with Energizer for CICS*.

The Energizer for CICS Reporting Address Space can only be terminated manually using the MODIFY command entered from an MVS operator console. See “” on page 3-19.

Note: If you are terminating the active Energizer for CICS functions in both CICS *and* the Reporting Address Space, BMC Software recommends that you issue the termination command for the Reporting Address Space about 60 seconds after Energizer for CICS has been terminated in *all* the CICS regions.

User-Initiated Startup and Shutdown of Reporting Address Space

The Energizer for CICS Reporting Address Space can be activated by using one of the following methods:

- As part of the dynamic installation of the Energizer for CICS CLOSE TYPE=T SVC. Use the sample JCL that is provided in the BBSAMP sample library member ECSJSIRP. If the optional PROCNAME keyword is specified in the PARM or SYSIN statements of this JCL, a Start command will be issued for the specified procedure. See *Getting Started with Energizer for CICS*.

- As a batch job. Use the sample JCL that is provided in the BBSAMP sample library member ECSJRASM.
- As a started task, by activating a procedure catalogued in the MVS procedure library. Use the sample procedure that is provided in the BBSAMP sample library member ECSPRASM.

Due to VSAM restrictions, BMC Software recommends that you activate the Energizer for CICS Reporting Address Space *before* activating the Energizer for CICS functions in CICS. BMC Software therefore also recommends that you add the ECSJSIRP JCL as part of the IPL procedure. This will ensure the successful automatic activation of the Reporting Address Space and all the other Energizer for CICS components.

The Energizer for CICS Reporting Address Space can be terminated manually by using the MODIFY command entered from an MVS operator console. See “MODIFY Commands” on page 3-8.

The Energizer for CICS Reporting Address Space verifies the BMC Software license information. The Reporting Address Space maintains license information for the CICS component. When the BMC Software License Facility is used to update license information, the Reporting Address Space will not update the information used by the CICS component until the following day. The MODIFY REFRESH command immediately updates the license information maintained by the Reporting Address Space.

The Energizer for CICS Reporting Address Space periodically writes to the Report File all of the Energizer for CICS activities. These activities can then be reviewed online under CICS and TSO, as well as with the Batch Reporting Facility.

At least one Report File (DDname REPORT) must be specified in the JCL of the Reporting Address Space. Up to 99 additional files (DDnames REPORT01, REPORT02, ..., REPORT99) can also be specified. When a Report File becomes full, the Reporting Address Space will close and deallocate this file and will attempt to open the file with the next consecutive REPORTnn DDname. If no such DDname exists in the JCL, the Reporting Address Space will automatically switch back to the first file (DDname REPORT). If this file is still full, or if any other error is encountered, Energizer will prompt the console operator to manually enter a DSName of a new Report File. See Figure 3-1 on page 3-7.

In this case, the operator can perform one of the following actions:

- Supply a DSName of a new Report File.

The Reporting Address Space will allocate and open the new file. All the Energizer for CICS activities will now be written to the new file.

In principle, it is possible to supply the DSName of the current Report File after having archived, deleted, and redefined it. Keep in mind, however, that this method requires you to first close and deallocate the file in all the CICS, TSO, and batch regions that might be currently using it.

The actions taken by the Reporting Address Space after the new file (whose DSName was supplied manually) fills up depend on the DSName supplied:

- If the DSName supplied is that of the first file (DDname REPORT), the Reporting Address Space will resume its automatic loop (i.e., it will then attempt to open the second file (DDname REPORT01)).
- If the DSName supplied is not that of the first file, the Reporting Address Space will then attempt to open the first file (DDname REPORT).

or

- Type **STOP**. This will cause the Reporting Address Space to terminate. All of the Energizer for CICS functions that are active in the CICS regions will continue functioning normally.

Figure 3-1 on page 3-7 is a sample Reporting Address Space Job Log. It demonstrates the automatic switch to a 2nd Report File specified in the JCL. When this file also fills up and no additional files are found in the JCL, an automatic switch is made to the first file (DDname REPORT). Since this file is still full, a new DSName is requested. After the operator replies with the DSName, the Reporting Address Space resumes its normal operation, using the new Report File.

Figure 3-1 Sample Reporting Address Space Job Log

```

PE1252: ENERGIZER/CICS 4.100 REPORTING ADDRESS SPACE STARTED
PE1269: THE ENERGIZER/CICS MVS-CSA AREA IS AT : 03EB07F0. THE RAS AREA IS AT :
03EB0FA0
PE1201: ENERGIZER/CICS REPORTING SUBTASK      STARTED. DDNAME : REPORT  ,
REPINTV= 00030
PE1226: DSNAME = ENERGIZE.CICS.REPORT
PE1202: NO MORE SPACE ON FILE REPORT
PE1209: REPORT FILE REPORT  CLOSED
PE1201: ENERGIZER/CICS REPORTING SUBTASK      RESTARTED. DDNAME : REPORT01,
REPINTV= 00030
PE1226: DSNAME = ENERGIZE.CICS.REPORT1
PE1202: NO MORE SPACE ON FILE REPORT01
PE1209: REPORT FILE REPORT01  CLOSED
IEC130I REPORT02 DD STATEMENT MISSING
PE1218: NO DD STATEMENT FOR REPORT FILE REPORT02
PE1201: ENERGIZER/CICS REPORTING SUBTASK      RESTARTED. DDNAME : REPORT  ,
REPINTV= 00030
PE1226: DSNAME = ENERGIZE.CICS.REPORT
PE1202: NO MORE SPACE ON FILE REPORT
PE1209: REPORT FILE REPORT  CLOSED
PE1223: "STOP" WILL CAUSE AN IMMEDIATE TERMINATION OF  ENERGIZER/CICS REPORTING
SUBTASK
*53 PE1224: ENTER A DSNAME TO SERVE AS ENERGIZER/CICS REPORT FILE OR STOP
R 53,ENERGIZE.CICS.REPORT2
PE1201: ENERGIZER/CICS REPORTING SUBTASK      RESTARTED. DDNAME : REPORT02,
REPINTV= 00030
PE1226: DSNAME = ENERGIZE.CICS.REPORT2

```

After all Report Files specified in the JCL fill up, it is still possible that the Reporting Address Space will loop several times through all the specified files until finally requesting a new DSName from the operator. This behavior is due to the fact that VSAM writes records with different key ranges to different Control Intervals. It is therefore possible that although VSAM has returned a “file full” condition on a PUT request, it will manage to successfully write subsequent records (with different keys).

The reporting data generated by the Energizer for CICS functions is kept in buffers in common MVS storage. This process is not dependent upon the activity of the Reporting Address Space. Therefore, the Energizer for CICS functions active in CICS continue functioning normally even if the Report File is full or if the Reporting Address Space is not active. The contents of the reporting buffers will be written to the Report File when the Reporting Address Space resumes its activity (after being restarted or after a DSName of an alternative Report File has been supplied by the operator). Normally, the size of the reporting buffers allocated by Energizer for CICS in the MVS common storage should suffice to hold the reporting data until it is written to file. However, if the buffers fill up, reporting data might be lost. However, the Energizer for CICS functions will continue working.

To avoid losing data, it is advisable to define the Report File with sufficient space. See Appendix B, “Maintaining Files” in *Getting Started with Energizer for CICS* for an estimation of the space requirements. It is advisable to also define a secondary allocation for the Report File and to define in the Reporting Address Space JCL at least one additional Report File to be used when the first Report File fills up.

MODIFY Commands

The Energizer for CICS Reporting Address Space can be controlled by using the following MODIFY commands entered from an MVS operator console.

Table 3-1 MODIFY Commands

Command	Description
<i>/F jobname,STOP</i>	Request a conditional termination of the Reporting Address Space. If Energizer for CICS functions are still active in any CICS region, this request will be rejected. The STOP request will also be rejected if Energizer for CICS was terminated in the CICS regions but the reporting data has not yet been fully written to the Report File. BMC Software therefore recommends that you issue the STOP command about 60 seconds after Energizer for CICS has been terminated in all the CICS regions.
<i>/F jobname,FSTOP</i>	Request an unconditional termination of the Reporting Address Space even if Energizer for CICS functions are still active in any CICS region. The Energizer for CICS functions active in the CICS regions will continue functioning normally. Their reporting data will be kept in buffers in MVS common storage and will be written to the Report File when the Reporting Address Space is restarted.
<i>/F jobname,SNAP</i>	Request a SNAP to be printed of some Energizer for CICS control blocks and storage areas. The snap is written to the data set specified by the SNAPMAIN DD statement in the execution JCL of the Reporting Address Space.
<i>/F jobname,SNAP,ADDR= start address,LENGTH=len</i>	Request a SNAP to be printed of the storage area starting at the specified address. The specified length (between X'0001' and X'7FFF') limits the size of the snap. The snap is written to the data set specified by the SNAPMAIN DD statement in the execution JCL of the Reporting Address Space. The storage area addressed by ADDR must either reside in MVS common storage or in the private storage of the Reporting Address Space.
<i>/F jobname,REFRESH</i>	Immediately refreshes the BMC Software license information.

User-Initiated Startup and Shutdown CICS Functions

Energizer for CICS allows you to manually activate and deactivate each CICS function separately, using the online Control Facility. When a function is activated manually, it is active only during the current execution of CICS. It can be deactivated manually using the Control Facility or automatically when CICS is brought down.

1. Enter the Energizer for CICS transaction **PERM** on a CICS screen to display the Energizer for CICS Primary Menu (screen C20). See “Online Primary Menu Screen (C20)” on page 3-10.

Note: In CICS 5.2, apply IBM PTF UQ24583 before activating transaction PERM on a remote CICS system via CRTE.

2. Select Option **1** to display the Energizer for CICS Control Facility (Screen C21). See “Control Facility Screen (C21)” on page 3-11.
3. Type **A** in the field preceding each function that you want to activate or type **A** on the line preceding ALL FUNCTIONS to activate all the functions.

Note: CPU utilization measurement, DSA utilization measurement, and the Tuning transaction are automatically activated when the first function is activated.

4. To change the activation mode of a function, type over the **MODE** parameter before activating the function. **PROD** sets the function to production mode; the activated function will report and perform the adjustments to the system as needed. **SIML** sets the function to simulation mode; the activated function will only report the proposed actions to the Report File. The actions will not actually be implemented. The **MODE** parameter can only be changed during activation of the function. The **MODE** parameter for each function shown on the screen is either the default setting of **PROD** or the customized setting entered on the Energizer for CICS TSO/ISPF Interface Parameters Facility screens. See Chapter 2, “Customizing Energizer for CICS”.

Note: Changing the **MODE** parameter on the Control Facility screen will only change the activation mode for the current activation of the function in CICS. The parameter will revert back to the default or customized setting in the Parameter File the next time the function is activated. To permanently change the **MODE** setting, use the Parameters Facility screens of the Energizer for CICS TSO/ISPF interface.

5. Press **Enter** to process the requests.
6. To temporarily change the parameters of an active function, type **S** on the field preceding the function name and press **Enter** to display the selected function's parameters screen. Type over the parameter settings and press **Enter** to process the changes. The changes will take effect immediately and will be in effect until the function is deactivated. See “Control Facility Screen (C21)” on page 3-11.
7. To view current status data for an active function, type **?** on the line preceding the function and press **Enter**. Energizer for CICS displays the status screen for that function. Press **PF3** to return to the Control Facility screen.
8. To deactivate an active function, type **D** on the field preceding the function or type **D** on the field preceding ALL FUNCTIONS to deactivate all functions.

Note: To change the MODE of an active function, deactivate the function and wait until the STAT field is blank indicating that the function is no longer active. Press **Enter** to refresh the status of the functions, repeatedly, if necessary. Type over the MODE parameter and activate the function again.

Online Primary Menu Screen (C20)

Energizer for CICS displays the online Primary Menu when you enter the transaction **PERM** on a CICS screen.

Note: In CICS 5.2, apply IBM PTF UQ24583 before activating transaction PERM on a remote CICS system via CRTE.

Figure 3-2 Online Primary Menu

```

APPLID CICS52          ENERGIZER/CICS          DATE 08/02/99
REL  4.100             PRIMARY MENU            TIME 15:53:26
                                                C20

OPTION ==>

          1  CONTROL FACILITY
          2  REPORTING FACILITY

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ENERGIZER/CICS 4.100 13/01/98 ESA ASSEMBLED 01/14/98 17.13
-----
PFKEYS: 1      2      3 END      4 EXIT      5      6
         7      8      9      10      11      12

```

The Energizer for CICS online Primary Menu lists two options. To select an option, type the option number in the **OPTION** field and press **Enter**. Energizer for CICS displays the screen for the option that you selected.

The options are described below.

- **Control Facility:** Used to manually activate or deactivate the Energizer for CICS functions, temporarily change the parameter settings of a function, view current status data for a function, and change the current PROD/SIML activation mode of a function.
- **Reporting Facility:** Used to display information about the actions that Energizer for CICS executed in order to enhance the performance of CICS.

The Control Facility option is explained in the sections that follow. The Reporting Facility option is explained in chapter 4 “Online Reporting Facility”.

Press **PF3** or **PF4** to terminate transaction PERM.

Control Facility Screen (C21)

Energizer for CICS displays the Control Facility Screen C21 when you select Option 1, Control Facility from the online Primary Menu.

Figure 3-3 Control Facility Screen

APPLID BCVCT62E	ENERGIZER/CICS	DATE 10/17/01
REL 4.3.00	CONTROL FACILITY	TIME 09:31:29
		C21

FUNCTION	STAT	MODE	FUNCTION	STAT	MODE
_ ALL FUNCTIONS			_ TS QUEUE MANAGEMENT	ACT	SIML
_ DISPATCH MANAGEMENT		SIML	_ TD QUEUE MANAGEMENT	ACT	SIML
_ MRO DISPATCH MANAGEMENT		SIML	_ TASK TIME-OUT MANAGEMENT		SIML
_ MRO/ISC QUEUE MANAGEMENT	ACT	SIML	_ TRAN CLASS MANAGEMENT	ACT	SIML
_ PROG COMPRESSION MANAGEMENT	ACT	SIML	CPU UTIL MEASUREMENT	ACT	
_ STORAGE MANAGEMENT	ACT	SIML	DSA UTIL MEASUREMENT	ACT	
_ VSAM QUEUE MANAGEMENT	ACT	SIML	REPORTING	ACT	
_ TRACE MANAGEMENT	ACT	SIML	TUNING TRANSACTION	ACT	
_ VSAM SUBTASK MANAGEMENT		SIML			
_ MAXTASKS MANAGEMENT	ACT	SIML			

ENTER: A - ACTIVATE; D - DEACTIVATE; S - SELECT; ? - STATUS; MODE = PROD/SIML

PFKEYS: 1	2	3 END	4 EXIT	5	6
7	8	9	10	11	12

The Energizer for CICS Control Facility is used to manually activate and deactivate the Energizer for CICS functions, change their current PROD/SIML activation mode, view current status data for the functions, and temporarily change parameter settings for the current activation of the function.

When you activate a function using the Control Facility, the function will only be active during the current session of CICS. To start a function automatically, use the Parameters Facility on the Energizer for CICS TSO/ISPF interface to set the AUTOSTART parameter of the function to YES. See “Automatic Startup” on page 3-2.

The Energizer for CICS Control Facility also provides a means of testing a function without actually performing the adjustments to the system. The Simulation Mode option will report on the proposed activities as they are needed without actually implementing their operations. By activating a function in Simulation Mode, you can view the results of various parameter settings to determine their optimal usage. The Production Mode performs the adjustments to the system as needed.

When you activate the Energizer for CICS functions, the parameter settings displayed on each of the Parameters screens are either the default settings or the customized settings contained in the Parameter File. You can change these settings for the current activation of the function, but they will revert back to the values in the Parameter File the next time the function is activated. To permanently change the parameter settings, use the Parameters Facility on the Energizer for CICS TSO/ISPF interface which will update the Parameter File. See Chapter 2, “Customizing Energizer for CICS”.

STAT: The screen lists all of the Energizer for CICS functions. The status of each function is displayed in the STAT field on the screen. If a function is active, the STAT field will display **ACT**. If the STAT field is blank, the function is not active. Upon activation or deactivation, the STAT field will display ARQ or DRQ, respectively, until the request is processed. A function must have a status of ACT or ARQ in order to temporarily change its parameter settings. The MODE parameter can only be changed before activation of the function.

To activate a function: Type **A** in the field preceding the function and press **Enter**. The STAT field will display ARQ (Activation Requested) until the request is processed. It will then display ACT.

To deactivate a function: Type **D** in the field preceding the function and press **Enter**. The STAT field will display **DRQ** (Deactivation Requested) until the request is processed. It will then be blank.

MODE: The activation mode for each function is displayed in the MODE field on the screen. To temporarily change the MODE setting, type over the value in the MODE field before activating the function. To change the MODE setting of an active function, deactivate the function, type over the value in the MODE field, and activate the function again. To permanently change the MODE setting for a function, use the Parameters Facility. See Chapter 3, “Starting and Stopping Energizer for CICS”.

PROD: The function is in production mode. It will perform the adjustments to the system as needed and will report all activity to the Report File.

SIML: The function is in simulation mode. It will only report to the Report File the proposed activity it would have taken if it were in PROD mode.

To view current status data for an active function, type **?** in the field preceding the function name and press **Enter**. Energizer for CICS will display the status screen for that function. Press **PF3** to return to the Control Facility screen.

Figure 3-4 Sample Status Screen for the CICS 5.2 Temporary Storage Queue Management Function

```

APPLID CICS52          ENERGIZER/CICS          DATE 08/02/99
REL 4.100              TEMPORARY STORAGE QUEUE MANAGEMENT STATUS  TIME 16:38:10
                                                                $21G

ORIGINAL NUMBER OF STRINGS      :          3
CURRENT  NUMBER OF STRINGS      :          3
ORIGINAL NUMBER OF BUFFERS      :          3
CURRENT  NUMBER OF BUFFERS      :          3
NUMBER OF TASKS WAITING FOR STRINGS :          0
NUMBER OF TASKS WAITING FOR BUFFERS :          0

-----
PFKEYS: 1      2      3 END      4 EXIT      5      6
         7      8      9      10      11      12

```

To temporarily change the parameter settings of a function, select the function by typing **S** in the field preceding the function name and press **Enter**. Energizer for CICS will display the Parameters screen for that function. Modify the parameter by typing over the current setting and press **Enter**. A message will appear indicating that the parameter has been changed. Press **PF3** to return to the Control Facility screen.

Note: A function must have a status of ACT or ARQ in order to change its parameter settings.

Note: When changing parameter settings for a time-dependent function, the modifications and associated operations will take effect after the end of the current Tuning Interval of the Energizer for CICS long-running tuning transaction PET0 (see “General Parameters Screen (I101)” on page 2-17).

For multiple selections, type **S** in the field preceding each function name and press **Enter**. Energizer for CICS will display the Parameters screen for the first function that you have selected. After typing over the parameter settings, press **Enter** to activate the change. Press **PF3** to return to the Control Facility screen and press **Enter** to display the Parameters screen for the next function that you have selected.

Note: Be sure to press **Enter** to save the changes on *each* parameters screen. **PF3** will *not* process the parameter changes.

Energizer for CICS provides an Online Reporting Facility that displays information about the actions that Energizer for CICS executed in order to enhance CICS performance. After activating the functions or modifying their parameter settings, use the Online Reporting Facility (Option 2 on the Primary Menu) to view the information.

The functions and their parameter settings are described below:

Note: Some of the Parameter screens differ for the various releases of CICS.

All Functions: Activating or deactivating all of the Energizer for CICS functions or globally modifying their PROD/SIML modes. Selecting All Functions for parameter changes will display the General Parameters screen, which includes the standard interval length used by the time-dependent functions, the interval length used for writing summary reporting information, and the Exception Action Message Routing Option.

Dispatch Management: The Dispatch Management function dynamically controls when and for how long CICS will issue MVS waits.

Activation of the Dispatch Management function will automatically activate the MRO Dispatch Management function with the same mode of operation, and vice versa.

MRO Dispatch Management: The MRO Dispatch Management Function is an extension of the Dispatch Management Function. It assists with the management of the CICS dispatch processing within environments that have multiple CICS regions being managed by Energizer for CICS.

Activation of the MRO Dispatch Management function will automatically activate the Dispatch Management function with the same mode of operation, and vice versa.

MRO/ISC Queue Management: The MRO/ISC Queue Management function dynamically controls the number of tasks that can wait for an interconnected MRO/ISC session. The MRO Queue Management parameter settings include the maximum number of tasks allowed to wait for a session, and a control parameter to purge waiting tasks during stress conditions.

Program Compression Management: The Program Compression function provides dynamic DSA utilization targets for the Dynamic Program Storage Compression of CICS. The parameter settings include maximum and minimum storage factors, and DSA utilization thresholds for determining when program compression is necessary.

Storage Management: The Storage Management function dynamically regulates the maximum amount of storage that CICS can use for its DSAs so that short-on-storage situations might be prevented before they occur. The function dynamically increases or decreases the CICS internal parameter EDSALIMIT, which is the upper limit of the amount of storage that CICS can allocate for above-the-line DSA.

VSAM Queue Management: The VSAM Queue Management function dynamically manages the number of concurrent VSAM file strings of CICS data sets, and the number of requests that can wait for file strings and LSR strings and buffers. The VSAM Queue Management parameter settings include the maximum number of file strings that can be added, the maximum number of tasks allowed to wait for file strings and LSR strings and buffers, the parameter settings to cancel tasks that are waiting for these resources when CICS is short on storage, at MXT, or at CMXT/MAXACTIVE for the appropriate task class, the parameter setting for restoring original string values prior to termination of the function, the specific files and tasks to be included/excluded from the function, the specific tasks to be excluded from termination during stress conditions, and a file specification list for customizing the functional parameters for a specific file.

Trace Management: The Trace Management function controls the number of CICS trace services that are active whenever the CPU utilization exceeds a user-defined critical threshold. It will automatically begin to turn off CICS trace subfunctions, one by one, until the CPU usage falls below this critical point. When the CPU utilization falls below a second user-defined threshold, the deactivated trace sub-functions are reactivated, in reverse order, as long as the CPU resources are available for the service. Trace Management parameter settings include the maximum and minimum limits of CPU utilization for turning on and off CICS trace subfunctions, identification of which CPU utilization to monitor, and a Trace Options Table for prioritizing the CICS Trace subfunctions.

Note: The CICS component names that are listed on the Trace Options Table screen vary between CICS releases.

VSAM Subtask Management: The VSAM Subtask Management function dynamically controls the use of subtasking for CICS requests to VSAM based on user-defined limits of CPU utilization. When CPU utilization exceeds these thresholds, the VSAM Subtask Management function allows CICS to utilize VSAM subtasking for PUT and GET operations. The function also turns off the appropriate subtask option when it calculates that the CPU usage without the active subtask will fall below the minimum defined. VSAM Subtask Management parameter settings include the separate minimum limits of CPU utilization for VSAM PUT and GET operations before activating VSAM subtasking, and an internal parameter that should only be changed based on the recommendation of Product Support personnel.

Maxtasks Management: The Maxtasks Management function dynamically regulates the maximum number of tasks that can be concurrently handled by CICS. It adjusts the CICS Maximum Number of Tasks specification (MAXTASKS) according to a CPU utilization threshold, a DSA utilization threshold, MAXTASKS and short-on-storage conditions, or if the current number of tasks is approaching MAXTASKS. Maxtasks Management parameter settings include the maximum limits of DSA and CPU utilization, maximum and minimum values for CICS MXT, starting value for CICS MXT, and a control parameter to allow reduction of MXT below its original value.

Temporary Storage Queue Management: The Temporary Storage Queue Management function dynamically manages the number of CICS Temporary Storage strings and buffers and the number of requests that can wait for these resources. Temporary Storage Queue Management parameter settings include the maximum number of Temporary Storage strings and buffers that can be added, the maximum number of tasks allowed to wait for these resources, and a control parameter to purge waiting tasks during stress conditions.

Transient Data Queue Management: The Transient Data Queue Management function dynamically manages the number of CICS Transient Data strings and buffers and the number of requests that can wait for these resources. Transient Data Queue Management parameter settings include the maximum number of Transient Data strings and buffers that can be added, the maximum number of tasks allowed to wait for these resources, and a control parameter to purge waiting tasks during stress conditions.

Task Time-Out Management: The Task Time-Out Management function dynamically purges active or waiting CICS transactions that have passed their allowable duration. Task Time-Out Management parameter settings include the default maximum duration and purge condition for all tasks handled by the function, a control parameter to print detailed messages for each purged task, and a Task Age Table for customizing these parameters individually for specific tasks.

Transaction Class Management: The Transaction Class Management function matches the workload processed to the resources available by dynamically increasing and decreasing the internal CICS parameters, MAXACTIVE and PURGETHRESH, for each transaction class, based on current storage availability and CPU utilization. When the CPU and/or DSA utilizations exceed user-defined thresholds, Energizer for CICS reduces the MAXACTIVE and/or the PURGETHRESH values for that class until the resources are again available. When the CPU and DSA usage falls below minimum thresholds and CICS is approaching the MAXACTIVE limit, Energizer for CICS increases the limit for that class. Transaction Class Management parameter settings include the minimum and maximum CPU and DSA utilization thresholds, the minimum and maximum MAXACTIVE and PURGETHRESH values allowed, the transaction-class priority, the type of utilization measurement to use, and a list of tasks to be included/excluded from the function.

The following facilities are displayed on the Control Facility screen but can not be directly started and stopped manually.

CPU Utilization Measurement: The CPU Utilization Measurement function monitors the CPU utilization in both the CICS region and the whole system. This function is automatically activated when the first Energizer for CICS function is activated. It is deactivated when either Energizer for CICS is deactivated or when CICS is terminated.

DSA Utilization Measurement: The DSA Utilization Measurement function monitors dynamic storage utilization in the CICS region. This function is automatically activated when the first Energizer for CICS function is activated. It is deactivated when either Energizer for CICS is deactivated or when CICS is terminated.

Reporting: The Reporting STAT display is used to verify the status of the Energizer for CICS Reporting function. The Reporting function writes the Energizer for CICS message, activity, and summary records to the Report File. It is automatically activated when the Energizer for CICS Reporting Address Space is activated. It is deactivated when the Energizer for CICS Reporting Address Space is deactivated or when the Report File becomes full. When the Report File becomes full, Energizer for CICS displays the word FULL on the Reporting line of the Control Facility Screen. In addition, a warning message is displayed on the bottom of the screen.

Tuning Transaction: The Tuning Transaction STAT display is used to verify the status of the Energizer for CICS Tuning Transaction (PET0). It is automatically activated when the first Energizer for CICS function is activated. It is deactivated when either Energizer for CICS is deactivated or when CICS is terminated. It must have a status of ACT if any other function is active.

Note: If the Tuning Transaction is not active when any other Energizer for CICS function is active, check the CICS Job Log for Energizer for CICS messages that might indicate the reason. Refer to the *Energizer for CICS Messages and Codes Guide* and handle the situation accordingly.

- Press **Enter** to process the selection.
- Press **PF3** to return to the Energizer for CICS Primary Menu.
- Press **PF4** to terminate the PERM transaction.

Online Parameters Screens

When you select a function from the Energizer for CICS Control Facility screen, the online Parameters Screen for that function is displayed. The online Parameters screens are nearly identical to the Parameters Facility screens in the Energizer for CICS TSO/ISPF interface facility. The exceptions are the AUTOSTART and MODE parameters and parameters that cannot be changed while Energizer for CICS is active.

Chapter 4 Online Reporting Facility

The Energizer for CICS Online Reporting Facility provides information about the activities and operations that Energizer for CICS executed in order to enhance CICS performance. It displays the operational and statistical records from the Report File that were accumulated during the activation of the Energizer for CICS functions. The Energizer for CICS Online Reporting Facility can be accessed from the Primary Menu of either the TSO/ISPF User Interface or the CICS User Interface.

The Reporting Facility reports on the following subjects:

- CPU Utilization Measurement: CPU utilization at the end of every reporting interval and when Energizer for CICS takes action based on the monitored measurement
- DSA Utilization Measurement: DSA utilization at the end of every reporting interval and when Energizer for CICS takes action based on the monitored measurement
- Dispatch Management: Information as to how Energizer for CICS is managing CICS dispatches
- MRO Dispatch Management: Information as to how Energizer for CICS is managing the dispatches of Multi-Region Operation (MRO) requests
- MRO/ISC Queue Management: The number of tasks found waiting for an interconnected MRO/ISC session, and how many tasks were terminated by the function while waiting for a session of distributed transaction processing or function shipping
- Program Compression Management: How much storage was released when deleting the least used programs, how many programs were deleted, the DSA utilizations before and after the release

-
- **Storage Management:** The previous, current, and maximum values for DSALIMIT and EDSALIMIT and CPU and DSA utilizations
 - **VSAM Queue Management:** Which files had file strings added, which tasks were terminated by the function, which tasks were not terminated, and whether it was due to the exclusion lists or other reasons
 - **Trace Management:** Which CICS Trace components were turned on and off, the reasons for the activity, and the CPU utilizations
 - **VSAM Subtask Management:** CPU utilizations and the activation and deactivation of VSAM subtasking for VSAM GET and PUT operations
 - **Maxtasks Management:** What values were used for MXT, whether MXT was increased or decreased, the CPU and DSA utilizations, and the reasons for the tuning activity
 - **Temporary Storage Queue Management:** How many Temporary Storage strings or buffers were added, which tasks were allowed to wait for these resources, and which tasks were terminated by the function and the conditions under which they were terminated
 - **Transient Data Queue Management:** How many Transient Data strings or buffers were added, which tasks were allowed to wait for these resources, and which tasks were terminated by the function and the conditions under which they were terminated
 - **Task Time-Out Management:** Which tasks were terminated by the function, their approximate duration, and at which terminal
 - **Transaction Class Management:** The name of the transaction class whose limits were changed, what values were used for MAXACTIVE and PURGETHRESH, whether they were increased or decreased, the DSA and CPU utilizations, and the numbers of active and queued tasks for the class

To access the Online Reporting Facility from TSO:

1. Activate the Energizer for CICS TSO/ISPF interface to display the Primary Menu (Screen I00).
2. Select **Option 3** to access the online Reporting Facility (Screen RO60).

To access the Online Reporting Facility from CICS:

1. Type transaction **PERM** on a CICS screen to display the Energizer for CICS Primary Menu (Screen C20).

Note: In CICS 5.2, apply IBM PTF UQ24583 before activating transaction PERM on a remote CICS system via CRTE.

2. Select **Option 2** to display the Reporting Facility (Screen C22).

Reporting Facility Screens (C22 and RO60)

Energizer for CICS displays the Reporting Facility screen:

- CICS Screen C22 is displayed when you select Option 2, Reporting Facility, from the Energizer for CICS SICS Primary Menu (C20)
- TSO Screen RO60, shown in Figure 4-2 on page 4-4, is displayed when you select Option 3, Online Reporting Facility, from the Energizer for CICS TSO/ISPF interface Primary Menu (I00)

Figure 4-1 Online Reporting Facility Screen for CICS

```

APPLID CICS521          ENERGIZER/CICS          DATE 08/04/99
REL 4.100              REPORTING FACILITY        TIME 13:25:21
                                                C22

DATE 08/04/99 TIME 08.48.24 MSG TYPE ALL SUBJECT ALL ACTION ALL
DOWNS PERCENT APPLID CICS521 COMPONENT ALL SECHLN 10

08/04/99 08.28.28 P1191: ENERGIZER/CICS TASK TIME-OUT MANAGEMENT STARTED.
             RECS=FREE
08/04/99 08.28.28 P1911C: ENERGIZER/CICS MSG MIRROR TASK MANAGEMENT STARTED.
             RECS=FREE
08/04/99 08.38.55 * AC025C: INSTANTS INCREASE
             REASON INITIATED : 90 + HCT < CURRENT TASK NUMBER < HCT
08/04/99 08.39.00 * AC025C: INSTANTS INCREASE
             REASON INITIATED : 90 + HCT < CURRENT TASK NUMBER < HCT
08/04/99 08.48.24 * AC004C: CPU UTILIZATION MEASUREMENT
08/04/99 08.48.24 * AC005C: DSA UTILIZATION MEASUREMENT
08/04/99 08.48.24 * AC004C: INSTANTS MANAGEMENT REPORT
08/04/99 08.48.24 * AC022C: STORAGE MANAGEMENT REPORT

-----
PRINTS: 1          2          3 END          4 EXIT          5 REFIN          6 ACTION
        ? UP        8 DOWN        9 ONE LINE 10          11          12 BOTTOM
  
```

Figure 4-2 Online Reporting Facility Screen for TSO

```

USERID: 199087          ENERGIZER/CICS          DATE 99/06/00
REL 4.100              ONLINE REPORTING FACILITY  TIME 11:58
                                     SCREEN 0060

OPTIME ==>

DATE 08/04/99 TIME 08:48:24 MSG TYPE ALL SUBJECT ALL ACTION ALL
DOWNS PERCENT APPLD CICS521 COMPONENT ALL SCREEN IN 10

08/04/99 08:38:28 PT31C: ENERGIZER/CICS TRANSIENT DATA QUEUE MANAGEMENT
STARTED. MODE=PROD
08/04/99 08:38:28 PT191: ENERGIZER/CICS TASK TIME-OUT MANAGEMENT STARTED.
MODE=PROD
08/04/99 08:38:28 PT611C: ENERGIZER/CICS HEO HERROR TASK MANAGEMENT STARTED.
MODE=PROD
08/04/99 08:38:55 * AC025C: MACTASKS INCREASE
REASON INITIATED : 90 % MCT < CURRENT TASK NUMBER < MCT
08/04/99 08:39:03 * AC025C: MACTASKS INCREASE
REASON INITIATED : 90 % MCT < CURRENT TASK NUMBER < MCT
08/04/99 08:48:24 * AC004C: CPU UTILIZATION MANAGEMENT
08/04/99 08:48:24 * AC005C: DSA UTILIZATION MANAGEMENT
08/04/99 08:48:24 * AC004C: MACTASKS MANAGEMENT REPORT

F1= HELP  F2= SPLIT  F3= END  F4= RETURN  F5= PFIND  F6= ACTION
F7= UP  F8= DOWN  F9= SHAF  F10=  F11=  F12= ONE LINE

```

The Energizer for CICS Reporting Facility screens are used to access the Reporting Facility. The Online Reporting Facility provides you with information about the activities and operations that Energizer for CICS executed in order to enhance CICS performance. The Reporting Facility screens display both Energizer for CICS action messages (ACxxxx) and informational and warning messages (PExxxx/PTxxxx) that are also captured on the CICS Job Log and displayed on the operator console. See the *Energizer for CICS Messages and Codes Guide* for descriptions of each message.

Detailed information about each of the Energizer for CICS action messages (ACxxxx) can also be displayed on the screen if the message number is preceded by an *. Place the cursor anywhere on the message line and press **Enter**. An activity box containing reasons for the action and statistics before and after the action will be displayed. Press **PF3** to return to the original screen. See “Reporting Activity Box” on page 4-10.

The Energizer for CICS Reporting Facility displays information about a specific CICS region. The selection criteria lines on the top of the screen allow you to select which Report File to use as well as choose which portions of the file to view based on various criteria: date of activity, time, type of message, specific subject (function), specific action, and functional component. To modify the default selection criteria, type over the entry and press **Enter**. Use **PF7/PF8** to display the previous/next screen of data.

On entry to the Reporting Facility screen in CICS, Energizer for CICS will attempt to display a screen of the last available records for the current day. If Energizer for CICS cannot locate the last available record of the day, it will display a screen with the first available records of the day. If there are no available records for the current day, a message will be displayed, asking for the starting date and time.

On entry to the Online Reporting Facility in the TSO/ISPF interface, Energizer for CICS will display a screen with the first available records of the day. If there are no available records for the current day, a message will be displayed, asking for the starting day and time.

The fields on the selection criteria lines are described below:

- **DATE:** Enter the starting date of the information to display.

Default: Date of the last record on the screen when browsing forward.
Date of the first record on the screen when browsing backwards; Date of first activation when no records are displayed.

Format: mm/dd/yy

Restrictions: None

- **TIME:** Enter the starting time of the information to display.

Default: Time of the last record on the screen when browsing forward.
Time of the first record on the screen when browsing backwards; time of first activation when no records are displayed.

Format: hh.mm.ss

Restrictions: None

- **MSG TYPE:** Enter the type of messages to display. ACT displays only action messages (ACxxxx), descriptions of the activities that were executed in order to enhance CICS performance. EXC displays action messages for exception conditions only (i.e. when Energizer for CICS changed a CICS parameter dynamically, canceled a task, or added resources). WTO displays informational and warning messages (PExxxx/PTxxxx) only.

Default: ALL

Range of Values:

- ALL - All message types
- ACT - Action messages
- EXC - Exception conditions action messages
- WTO - Informational and warning messages

Restrictions: None

- **SUBJECT:** Enter the mnemonic code of the Energizer for CICS function to display.

Default: ALL**Format:** One- to eight-character mnemonic**Range of Values:****Table 4-1 Function Codes**

Code	Description
ALL	All functions
CPUUTIL	CPU Utilization Measurement
DISPATCH	Dispatch Management
DSAUTIL	DSA Utilization Measurement
MAXTASKS	Maxtasks Management
MRODISPC	MRO Dispatch Management
MROQUEUE	MRO/ISC Queue Management
PROGCOMP	Program Compression Management
STORAGE	Storage Management
SUBTASK	VSAM Subtask Management
TASKTIME	Task Time-Out Management
TEMPSTRG	TS Queue Management
TRACE	Trace Management
TRANDATA	TD Queue Management
TRNCLASS	Transaction Class Management
VSAMQ	VSAM Queue Management

Restrictions: None

- **ACTION:** Enter the code of the Energizer for CICS action to display.

Default: ALL

Format: Two- or three-character action code

Range of Values:

Table 4-2 Action Codes (Part 1 of 2)

Code	Description
ALL	All actions
AD	AMXT Decrease
AI	AMXT Increase
AR	Storage Management Reporting
BA	Temporary Storage Buffer Add
BD	Transient Data Buffer Add
CM	CPU Utilization Measurement
DD	DSALIMIT/EDSALIMIT Decrease
DI	DSALIMIT/EDSALIMIT Increase
DM	DSA Utilization Measurement
DS	Dispatch Parameter Setting
FS	Periodic FCT Scan
MD	Transaction Class Limits Decrease
MI	Transaction Class Limits Increase
MR	Local MRO Dispatch
MS	MRO Parm Value Setting
PC	Program Compression
PR	Program Compression Reporting
PS	Program Compression Summary
PU	Parameter Update
SA	VSAM String Add
SD	Transient Data String Add
SP	Temporary Storage String Add
TA	Task Abend (for MRO/ISC, VSAM Queue, Task Time-Out and TS/TD Queue Management)
TC	Trace Level Disable
TO	Trace Level Enable
TR	Trace Management Report
TS	Task Time-Out Summary

Table 4-2 Action Codes (Part 2 of 2)

Code	Description
VD	VSAM Subtask Disable
VE	VSAM Subtask Enable
WL	Dispatch Management
WU	Dispatch Management-Local
XD	MAXTASKS Decrease
XI	MAXTASKS Increase
XP	Remote MRO Dispatch
XR	MAXTASKS Management Report

Restrictions: None

- **DDNAME:** Enter the DDNAME of the report file to use. If activated from CICS, the default is PEREPORT. If activated from TSO, the default is the DDNAME specified on the Dialog Management screen. If you want to display information from another report file, type over the DDNAME.

Default: PEREPORT

Format: One- to eight-character DDNAME

Restrictions:

- Screen C22: The file must be defined in the FCT or in the CSD file of the current region.
- Screen RO60: The file must be defined on the Dialog Management screen.
- **APPLID:** Enter the VTAM APPLID of the CICS region. The default is the APPLID of the current CICS region, if activated from CICS, or, if activated from TSO, the default APPLID from the Dialog Management screen. To display information from another CICS region, type over the entry.

Default:

- Screen C22: APPLID of the current CICS region
- Screen RO60: Default APPLID from Dialog Management Screen

Format: 1 - 8 character VTAM Application ID

Restrictions: None

- **COMPONENT:** Enter the Energizer for CICS functional component to display. The Tuning component will select records associated with tuning activities; the General component will select the other activities.

Default: ALL

Range of Values:

- ALL - All components
- GEN - General
- TUN - Tuning

Restrictions: None

- **SRCHLIM:** Enter the maximum number of records of the Report File to search before displaying an output screen. This option will limit the number of records read when specifying detailed search criteria. If this limit is reached before a whole screen of data can be displayed, the number of records read is displayed on the bottom of the screen. **PF5/PF7/PF8** will continue the search and update the counter. If the search is successful, the counter initializes back to zero.

Default: 10

Range of Values: 1 - 99

Restrictions: None

The Energizer for CICS Reporting Facility allows you to view the information in either a multi-line format or in a one-line format. The multi-line format displays all the information at one time. The One Line Format displays only that part of the message that can fit on the horizontal limitation of the screen. It allows multiple messages to be displayed on the screen at one time. Use **PF10** and **PF11** to scroll left and right to view the entire message. The **PF12** key (or **PF9** key in CICS) toggles between the two formats.

The Reporting Facility uses the following **PF** key commands:

Table 4-3 Reporting Facility PF Keys

PF Key	Description
PF3	Return to the Energizer for CICS Primary Menu
PF4	Return to the screen from where you invoked the Energizer for CICS interface
PF5	Repeat the search criteria for applicable records
PF6	Display the activity box for the action message displayed on the line where the cursor is positioned
PF7	Display the previous screen of records
PF8	Display the next screen of records
PF9	In TSO, this key will perform a swap screen action to access other ISPF applications. In CICS, this PF key will toggle between a One-Line and a Multi-Line format of display.
PF10	Scroll left to display the beginning of the line when using the One-Line format.
PF11	Scroll right to display the rest of the line when using the One-Line format.
PF12	In TSO, this PF key will toggle between One-Line and Multi-Line format. In CICS, this PF key will display the last records on the Report File. In CICS, this option is only available when Energizer for CICS is currently active or has been active during the current session of CICS.

All PF keys, with the exception of **PF3/PF4**, will be ignored if the selection criteria have been changed.

Reporting Activity Box

The Energizer for CICS Reporting Facility also provides detailed descriptions of the actions that were executed in order to enhance CICS performance. Energizer for CICS action messages (ACxxxx) are displayed on the Reporting Facility screen. Reasons for the action and the statistics before and after the action was taken are displayed in an overlay Activity Box associated with each action message that is preceded with an *. A description of each of the data fields in the box is included in “Activity Box Field Descriptions” on page 4-11.

To access the Activity Box for an action, place the cursor anywhere on the action message and press **Enter** or **PF6**. The Activity Box will be displayed, overlaying part of the Reporting Facility screen. Press **PF3** to return to the original screen.

Note: Numeric data in the activity box is displayed in hexadecimal format, unless preceded by, indicating decimal format.

Figure 4-3 Sample Reporting Activity Box

```

APPLID CICS21          ENERGIZER/CICS          DATE 08/02/99
REL 4.100              REPORTING FACILITY       TIME 16:10:08
                                                C22

DATE 08/02/99 TIME 12.25.55 MSG TYPE ALL SUBJECT ALL ACTION ALL
DDNAME PEREPORT APPLID CICS21 COMPONENT ALL SRCHLIM 10

03/ AC004C: CPU UTILIZATION MEASUREMENT          C22A -----
03/ CCPU_U : .....0 SCPU_U : .....15 CCPU_UA : .....0      TERMINATED
03/ SCPU_UA : .....13 CCPU_UX : .....4 SCPU_UX : .....49    TASK
03/ NUM_SAMP : .....22 TOT_TASK : 00000006 NUM_MIRR : 00000000
03/ TASK/SEC : .....0 CCPU_UAP : 00000002 N_STRESS : .....0  RTED.
03/ FAILCODE : 00 FLAGBYTE : 20
03/
03/
03/
03/
03/
03/
-----
PFKEYS: 1      2      3 END      4 EXIT      5      6
        7 UP    8 DOWN   9      10      11      12

```

Activity Box Field Descriptions

Table 4-4 Activity Box Fields (Part 1 of 9)

Field	Description
#CH_LIMA:	the difference between the number of times EDSALIMIT was increased and the number of times it was decreased
#CH_LIMB:	the difference between the number of times DSALIMIT was increased and the number of times it was decreased
ACT_SYS:	internal data
ACTION:	action message displayed on the reporting facility screen
ACTIVE:	number of times the functional process was activated during the interval
AV_PRATE:	average page-in rate during last interval
AVG#_TSK:	average number of dispatchable tasks during last interval
BASE:	internal data
BASE_ADJ:	internal data
BUF_WAIT:	number of tasks waiting for temporary storage/transient data buffers

Table 4-4 Activity Box Fields (Part 2 of 9)

Field	Description
BUFF_NUM	number of temporary storage/transient data buffers defined
CCPU_U	current CICS CPU utilization
CCPU_UA	average CICS CPU utilization recorded over the last interval
CCPU_UAP	precise average CICS CPU utilization over the last interval. Displayed in hexadecimal form : Utilization*1024/100. This field is present if bit X'20' in FLAGBYTE is on.
CCPU_UG	CICS CPU utilization threshold for GET subtasking
CCPU_UH	maximum CICS CPU utilization threshold
CCPU_UL	minimum CICS CPU utilization threshold
CCPU_UP	CICS CPU utilization threshold for PUT subtasking
CCPU_UX	maximum CICS CPU utilization recorded in the last interval
CDSA_BC	number of bytes freed in the CDSA
CDP_GT1	internal data
CDSA_U	current CDSA utilization
CDSA_UA	average CDSA utilization during last interval
CDSA_UH	maximum CDSA utilization threshold
CDSA_UL	minimum CDSA utilization threshold
CNT_MODE	internal data
CPU	type of CPU measurement used
CPU_UH	minimum CPU utilization for deactivating trace options
CPU_UL	maximum CPU utilization for reactivating trace options
CSAKCMI	current value of the CICS MAXTASKS flag
CSASOSI	current value of the CICS short-on-storage flag
CUR_#MXT	current value of the CICS MXT condition counter
CUR_#SOS	current value of the CICS SOS condition counter
CUR_CMXT	current maximum CICS CMAXTASKS value among all existing task classes.
CUR_LIMA	current EDSALIMIT value
CUR_LIMB	current DSALIMIT value
CUR_MAXA	current MAXACTIVE value for the transaction class
CUR_MXT	current CICS MAXTASKS value
CUR_NUMQ	number of tasks belonging to the transaction class currently queued for execution
CUR_PURG	current PURGETHRESH value for the transaction class
CUR_SFAC	value of the storage factor upon exiting the Program Compression Management function

Table 4-4 Activity Box Fields (Part 3 of 9)

Field	Description
CUR_TOTQ	total number of tasks belonging to the transaction class that had to be queued
DDNAME	DDNAME of file for which action was taken
DFLTMOT	default Maximum Task duration
DISP_ACT	the maximum number of CICS regions that were using the MRO Dispatch Management function during the interval
DISPATCH	internal data
DTP_CNCL	number of Distributed Transaction Processing tasks that were terminated by the MRO/ISC Queue Management function
DTP_WAIT	number of Distributed Transaction Processing tasks that were waiting for an MRO/ISC session
DURATION	approximate task duration (0.1 seconds). A value of 999999999 indicates a duration exceeding one hour
ECDSA_BC	number of bytes freed in the ECDSA
ECDSA_U	current ECDSA utilization
ECDSA_UA	average ECDSA utilization during last interval
ECDSA_UH	maximum ECDSA utilization threshold
ECDSA_UL	minimum ECDSA utilization threshold
ELIG_21	internal data
ELIG_3X	internal data
ELIG_41	internal data
ELIGIB_1 - ELIGIB_2	internal data
ELIGIBLE	internal data
ERDSA_BC	number of bytes freed in the ERDSA
ERDSA_RT	average residence time of not-in-use programs in the ERDSA
ERDSA_U	current ERDSA utilization
ERDSA_UA	average ERDSA utilization during last interval
ERDSA_UH	maximum ERDSA utilization threshold
ERDSA_UL	minimum ERDSA utilization threshold
ERROR_2 - ERROR_4	internal data
ESDSA_BC	number of bytes freed in the ESDSA
ESDSA_U	current ESDSA utilization
ESDSA_UA	average ESDSA utilization during last interval
EUDSA_BC	number of bytes freed in the EUDSA
EUDSA_U	current EUDSA utilization

Table 4-4 Activity Box Fields (Part 4 of 9)

Field	Description
EUDSA_UA	average EUDSA utilization during last interval
EUDSA_UH	maximum EUDSA utilization threshold
EUDSA_UL	minimum EUDSA utilization threshold
FAILCODE	internal failure reason code
FIRST_DD	first FCT entry found
FLAG	internal data
FLAGBYTE	hexadecimal code pertaining to the status of Dispatch Management and current CPU utilization: X'80' = Dispatch Management is active X'40' = Dispatch Management is active in simulation mode X'20' = Precise average CICS CPU utilization is available
FLAG1	internal data
FLAG2	internal data
FLAG3	hexadecimal code indicating the reason for terminating the task: X '04' = CICS MXT Condition X '08' = CICS SOS Condition X '10' = Buffer shortage X '20' = String shortage
FLAG4	internal data
FLAG5	internal data
FLAG6	internal data
FLAG7	internal data
FLAG	hexadecimal code pertaining to actions taken by the Maxtasks management function: X '01' = Set to decrease after stress situation is resolved X '02' = Decrease was two intervals earlier X '04' = Previous action was decrease X '08' = Previous action was increase X '10' = Reduction of MXT is permitted X '20' = Simulation Mode
FLAG9	same as FLAG8
FREEA_U	unallocated plus empty storage extents above the line as a percentage of EDSALIMIT
FREEA_UA	average unallocated plus empty storage extents above the line during last interval as a percentage of EDSALIMIT
FREEB_U	unallocated plus empty storage extents below the line as a percentage of DSALIMIT

Table 4-4 Activity Box Fields (Part 5 of 9)

Field	Description
FREEB-UA	average unallocated plus empty storage extents below the line during last interval as a percentage of DSALIMIT
FSR_CNCL	number of function shipping tasks that were terminated by the MRO/ISC Queue Management Function
FSR_WAIT	number of function shipping tasks that waited for MRO/ISC sessions
HTSKRATE	peak number of active tasks when CICS issued an MVS Wait
INT_CNT1	number of times the functional process was not activated during the interval because of internal conditions
INTERVAL	interval length in hundredths of a second
LAST_DD	last FCT entry found
LIMIT1 - LIMIT5	internal data
LIMITS	internal data
LSR_POOL	LSR pool of the file
MAX_ABS	internal data
MAX_ADD	maximum number of temporary storage/transient data strings/buffers allowed to be added
MAX_ADJ	internal data
MAX_LIMA	maximum allowed value of EDSALIMIT
MAX_LIMB	maximum allowed value of DSALIMIT
MAX_MAXA	maximum MAXACTIVE value allowed for the transaction class
MAX_MXT	maximum allowed value of CICS MAXTASKS
MAX_PCT	internal data
MAX_PURG	maximum PURGETHRESH value allowed for the transaction class
MAX_TRAN	transaction ID of the highest priority transaction belonging to the class
MAX_WAIT	value of the MAXIMUM TASKS TO WAIT FOR A SESSION parameter, which specifies the maximum number of tasks allowed to wait for an MRO/ISC session.
MAX2ADD	maximum number of strings that can be added to this file
MAX2WAIT	maximum number of tasks allowed to wait for file strings, LSR strings or buffers, of TS/TD strings or buffers
MIN_ADJ	internal data
MIN_MAXA	minimum MAXACTIVE value allowed for the transaction class
MIN_MXT	minimum allowed value of CICS MAXTASKS
MIN_PURG	minimum PURGETHRESH value allowed for the transaction class

Table 4-4 Activity Box Fields (Part 6 of 9)

Field	Description
MIN_XCOM	internal data
MULT_ACT	internal data
N_STRESS	internal data
NET_NAME	network name
NEWVALUE	parameter value after action was taken
NUM_ACT	number of tasks belonging to the transaction class that are currently active
NUM_ACTV	number of active CICS files
NUM_ADD	number of TS/TD strings/buffers added
NUM_AOR	internal data
NUM_BC_0	internal data
NUM_BUFF	current number of TS/TD buffers
NUM_CPUS	number of CPUs in the complex
NUM_MIRR	number of mirror tasks originated by CICS during the last interval
NUM_SAMP	number of samples
NUM_STUB	internal data
NUM_TASK	current number of active tasks in the system
NUM_TRAN	number of transactions belonging to the transaction class
OLDVALUE	parameter value before action was taken
OPERATOR	identification of user who modified the parameter
ORG_MAXA	original MAXACTIVE value for the transaction class
ORG_MXT	original CICS MAXTASKS value
ORG_PURG	original PURGETHRESH value for the transaction class
OVRL_MIN	internal data
PAGERATE	current page-in rate
PARAMNAME	name of parameter updated
PCFLAGS	internal data

Table 4-4 Activity Box Fields (Part 7 of 9)

Field	Description
PCBITS	Hexadecimal bits indicating actions taken by the Program Compression Management Function: X '01' = Storage factor increased X '02' = Storage factor decreased X '04' = Compression initiated for ERDSA X '08' = Compression initiated for RDSA X '10' = Compression initiated for EUDSA X '20' = Compression initiated for UDSA X '40' = Compression initiated for EDSA X '80' = Compression initiated for DSA
POST_EEC	internal data
POSTXACT	internal data
POSTBP_0	internal data
POSTBP_1	internal data
POSTBP_2	internal data
PROG_CMP	number of programs deleted since the previous activation of the Program Compression Management function. This number includes deletions in this activation and deletions between the previous and current activations.
PROG_DEL	number of programs deleted by the Program Compression Management function
PROG_LD	number of program loads from the RPL library by the CICS Loader Domain
PROG_NIU	number of programs in the not-in-use chain upon entry into the Program Compression Management Function
PROGNAME	name of program deleted from DSA
PROGSIZE	size of program deleted from DSA
PRV_#MXT	value of the CICS MXT condition counter at the previous activation of the Maxtasks Management function
PRV_#SOS	value of the CICS SOS condition counter at the previous activation of the function
PRV_LIMA	previous EDSALIMIT value
PRV_LIMB	previous DSALIMIT value
PRV_MAXA	previous MAXACTIVE value for the transaction class
PRV_MXT	previous CICS MAXTASKS value
PRV_PURG	previous PURGETHRESH value for the transaction class
PRV_SFAC	value of the storage factor upon entry into the Program Compression Management function

Table 4-4 Activity Box Fields (Part 8 of 9)

Field	Description
PRV_TOTQ	total number of tasks belonging to the transaction class that had to be queued, as recorded on the previous activation of the function
Q_NAME	name of TS/TD Queue requested by terminated task
Q1_CNCLD	number of times the Task Time-Out Management function purged active tasks
Q1_FOUND	number of times the Task Time-Out Management function wanted to purge active tasks
R_POSTSE	internal data
R_POSTSW	internal data
RDSA_BC	number of bytes freed in the RDSA
RDSA_U	current RDSA utilization
RDSA_UA	average RDSA utilization during last interval
REASON	the reason the activity was initiated or not taken
REDUCED	internal data
REQ_TYPE	type of CICS file request
RSCODE	internal data
SCPU_U	current system CPU utilization Sometimes this field will display a values that is lower than actual CICS CPU Utilization. This discrepancy is a result of different methods of measurement used by the MVS system.
SCPU_UA	average system CPU utilization recorded over the last interval
SCPU_UX	maximum system CPU utilization recorded in the last interval
SDSA_BC	number of bytes freed in the SDSA
SDSA_U	current SDSA utilization
SDSA_UA	average SDSA utilization during last interval
SELCT_21	internal data
SELCT_3X	internal data
SELCT_41	internal data
SELECT_1 - SELECT_2	internal data
SELECTED	internal data
SET_TO_1 - SET_TO_7	internal data
SFAC_H	maximum allowed value for the storage factor in the Program Compression Management function
SFAC_L	minimum allowed value for the storage factor in the Program Compression Management function

Table 4-4 Activity Box Fields (Part 9 of 9)

Field	Description
SIGNEDON	the maximum number of CICS regions in which Energizer for CICS functions were active during the interval
SIMLMODE	number of times the functional process was activated in simulation mode during the interval
SLOPE	internal data
STR_NUM	current number of TS/TD strings
STR_TYPE	type of file string added
STR_WAIT	number of tasks waiting for TS/TD strings
SYS_NAME	system name for which action was taken
T_STRESS	internal data
TASK/SEC	the average number of tasks per second originated by CICS during the last interval
TASK_NUM	CICS task number for which action was taken
TASKNAME	CICS task ID for which action was taken
TCL_NAME	transaction Class Name
TCL_PRTY	transaction Class Priority
TERMINAL	terminal where action was taken
TOT_TASK	number of tasks originated by CICS during the last interval.
TOT_TSKS	current number of tasks in system (active and suspended)
TRACEVLV	level of trace option deactivated/reactivated
TWO_SCAN	internal data
UDSA_BC	number of bytes freed in the UDSA
UDSA_U	current UDSA utilization
UDSA_UA	average UDSA utilization during last interval
UDSA_UH	maximum UDSA utilization threshold
UDSA_UL	minimum UDSA utilization threshold
USECOUNT	number of times that the program was activated
WAITS	internal data
WAIT/SEC	average number of MVS waits per second issued by CICS during the interval
WAKEUP_W	internal data
WLL_HIGH	internal data

Chapter 5 Batch Reporting Facility

The Energizer for CICS Batch Reporting Facility provides hardcopy information about the activities and operations that Energizer for CICS executes in order to enhance CICS performance. It generates report data from the operational and statistical records on the Report File that were accumulated during the activation of the Energizer for CICS functions. The Batch Reporting Facility includes the following features:

- **Batch Report:** Hardcopy report containing the same information that is displayed online in the Energizer for CICS Online Reporting Facility (see Chapter 4, “Online Reporting Facility”). Use this report for a detailed analysis of specific Energizer for CICS activities and their effect on CICS performance and availability.
- **Accumulative Statistics Report:** Accumulative statistical information about the data from the Report File. Use this report to obtain summary data for the activities of Energizer for CICS, grouped by function and type of activity.
- **Index Report:** A list of the CICS APPLIDs included in the Report File. For each APPLID, a detailed list shows the dates, times, and activation modes for each day that Energizer for CICS was active. Use this report for a summary of the data grouped by APPLID, dates of activity, and modes of operation.
- **CICS Performance Comparison Worksheet:** Statistical information about the performance of the CICS system during user-defined peak workload periods with and without the execution of Energizer for CICS. Use this report for an evaluation of the improvement in CICS performance that is achieved with Energizer for CICS.

-
- **CICS Automated Performance Comparison Worksheet:** Statistical information about the performance of CICS during peak workload periods, automatically identified by Energizer for CICS, with and without the execution of Energizer for CICS. Use this function to obtain pairs of peak workload periods with similar workloads that can be used to evaluate the performance improvement that is achieved with Energizer for CICS.
 - **CICS Performance Availability Statistics Report:** Summary information about long-term performance availability of the CICS system with Energizer for CICS. Use this report to obtain a summary of Energizer for CICS activities to improve system availability.
 - **SMF Analysis Report:** A comparison worksheet similar to the CICS Performance Comparison Worksheet, but based solely on data extracted from the system SMF files.

The Energizer for CICS Batch Reporting Facility provides information about the following subjects:

- **CPU Utilization Measurement:** CPU utilization at the end of every reporting interval and when Energizer for CICS takes action based on the monitored measurement.
- **DSA Utilization Measurement:** DSA utilization at the end of every reporting interval and when Energizer for CICS takes action based on the monitored measurement.
- **Dispatch Management:** Information about how Energizer for CICS is managing CICS dispatches.
- **MRO Dispatch Management:** The MRO Dispatch Management Function is an extension of the Dispatch Management Function. It assists with the management of the CICS dispatch processing within environments that have multiple CICS regions being managed by Energizer for CICS.
- **MRO/ISC Queue Management:** The number of tasks found waiting for an interconnected MRO/ISC session, and how many tasks were terminated by the function while waiting for a session of distributed transaction processing or function shipping.
- **Program Compression:** How much storage was released when deleting the least used programs, how many programs were deleted, and the DSA utilizations before and after the release.
- **Storage Management:** The previous, current, and maximum values for DSALIMIT and EDSALIMIT and CPU and DSA utilizations.

-
- VSAM Queue Management: Which files had file strings added, which tasks were abnormally terminated by a function, which tasks were not abnormally terminated, and whether it was due to the exclusion list or other reasons.
 - Trace Management: Which CICS Trace components were turned on and off, the reasons for the activity, and the CPU utilizations.
 - VSAM Subtask Management: CPU utilizations and the activation and deactivation of VSAM subtasking for VSAM GET and PUT operations.
 - Maxtasks Management: What values were used for MXT, whether MXT was increased or decreased, the CPU and DSA utilizations, and the reasons for the tuning activity.
 - Temporary Storage Queue Management: How many temporary storage strings or buffers were added, which tasks were allowed to wait for these resources, which tasks were terminated by the function, and the conditions under which they were terminated.
 - Transient Data Queue Management: How many transient data strings or buffers were added, which tasks were allowed to wait for these resources, which tasks were terminated by the function, and the conditions under which they were terminated.
 - Task Time-Out Management: Which tasks were abnormally terminated by the function, the approximate duration, and at which terminal.
 - Transaction Class Management: The name of the transaction class whose limits were changed, what values were used for MAXACTIVE and PURGETHRESH, whether they were increased or decreased, the DSA and CPU utilizations, and the number of active and queuing tasks for the class.

The Energizer for CICS Batch Reporting Facility options can be accessed from either the Energizer for CICS TSO/ISPF interface or directly with batch jobs. See the corresponding sections in this chapter for details about generating the reports using a batch job.

To access the Energizer for CICS Batch Reporting Facility via the TSO/ISPF interface:

1. Activate the TSO/ISPF User Interface to display the Primary Menu.
2. Select Option 2, Batch Reporting Facility.

Figure 5-1 TSO/ISPF Primary Menu

```
USERID  MYUSERID          ENERGIZER/CICS      DATE  01/02/20
REL    4.200              PRIMARY MENU        TIME  11:22
                                           I00

OPTION  ===>

ENTER ONE OF THE FOLLOWING OPTIONS :

      1  PARAMETERS FACILITY      APPLID =          (FULL/GENERIC/BLANK)
      2  BATCH REPORTING FACILITY
      3  ONLINE REPORTING FACILITY
      4  DIALOG MANAGEMENT
      5  PRODUCT AUTHORIZATION
      X  EXIT

COPYRIGHT BMC SOFTWARE INC.  1992 - 2001      ALL RIGHTS RESERVED
ENERGIZER/CICS 4.200  03/01/01 ESA ASSEMBLED 01/26/01 13.56
-----
F1=  HELP   F2=  SPLIT  F3=  END    F4=  RETURN F5=          F6=          F7=
F8=          F9=  SWAP   F10=         F11=         F12=
```

Batch Reporting Facility Screen

Energizer for CICS displays the Batch Reporting Facility screen when you select Option 2, Batch Reporting Facility, from the Energizer for CICS Primary Menu.

Figure 5-2 Batch Reporting Facility Screen

```

USERID  MYUSERID                      ENERGIZER/CICS                      DATE  01/12/12
REL   4.3.00                      BATCH REPORTING FACILITY                TIME  05:58
                                           I20

OPTION  ==>

ENTER ONE OF THE FOLLOWING OPTIONS:

      1  BATCH REPORT/ACCUMULATIVE STATISTICS REPORT/INDEX REPORT
      2  CICS PERFORMANCE COMPARISON WORKSHEET
      3  CICS AUTOMATED PERFORMANCE COMPARISON WORKSHEET
      4  CICS PERFORMANCE AVAILABILITY STATISTICS
      5  SMF ANALYSIS REPORT

-----
F1=  HELP  F2=  SPLIT  F3=  END    F4=  RETURN  F5=          F6=          F7=
F8=          F9=  SWAP  F10=         F11=         F12=

```

The Energizer for CICS Batch Reporting Facility screen lists five options. To select an option, enter the option number in the **OPTION** field and press **Enter**. Energizer for CICS displays the screen for the option that you selected.

The options are described below.

1. **Batch Report/Accumulative Statistics Report/Index Report:**

- The Batch report (PRINT) contains the same information that is displayed online in the Energizer for CICS Reporting Facility, described in Chapter 4.
- The Accumulative Statistics report (PRINTSTAT) displays statistical information about the Energizer for CICS management functions.
- The Index report (INDEX) contains a summary of the CICS Application IDs in the Report File with the activation mode for each day that Energizer for CICS was active.

2. **CICS Performance Comparison Worksheet:** Statistical information about the performance of the CICS system during user-defined peak workload periods with and without the execution of Energizer for CICS.

3. **CICS Automated Performance Comparison Worksheet:** Statistical information about the performance of the CICS system during peak workload periods, automatically identified by Energizer for CICS, with and without the execution of Energizer for CICS.
4. **CICS Performance Availability Statistics:** Summary information about long-term performance availability of the CICS system with Energizer for CICS.
5. **SMF Analysis Report:** A comparison worksheet similar to the CICS Performance Comparison Worksheet, but based solely on data extracted from the system SMF files.

Options 1 through 5 are explained in the sections that follow.

- Press **Enter** to process the selection.
- Press **PF3** to return to the Energizer for CICS Primary Menu.
- Press **PF4** to return to the TSO/ISPF screen from which you activated Energizer for CICS.

Batch Report/Accumulative Statistics Report/Index Report

The reports that may be produced using the Batch Report/Accumulative Statistics Report/Index Report screen seen in figure Figure 5-3 on page 5-7 are described in the following sections. This screen contains the same information that is displayed online in the Energizer for CICS Online Reporting Facility. It includes both action messages (ACxxxx) and informational and warning messages (PExxxx/PTxxxx) that are also captured on the CICS Job Log and displayed on the operator console. See the *Energizer for CICS Messages and Codes Guide* for detailed descriptions of each message. Use this report for a detailed analysis of specific Energizer for CICS activities and their effect on CICS performance and availability.

The Accumulative Statistics Report (Figure 5-6 on page 5-16), printed at the end of the Batch Report, contains statistical information about the data that was selected for the Batch Report. The information is displayed in the statistical messages (STxxx) that are described in detail in the *Energizer for CICS Messages and Codes Guide*. Use this report to obtain summary data for the activities of Energizer for CICS, grouped by function and type of activity.

The Index Report (Figure 5-7 on page 5-17) prints a list of the CICS APPLIDs included in the Report File. For each APPLID, a detailed list shows the dates, times and activation modes for each day that Energizer for CICS was active. In addition, the report displays the length (in reporting intervals) of each period of activity and the average number of transactions originated by CICS per interval. Use this report for a quick review of the data in the Report File, grouped by APPLID, dates of activity, and modes of operation.

The Batch Report, the Accumulative Statistics Report, and the Index Report can be generated from either the Batch Report/Accumulative Statistics Report/Index Report screen (Figure 5-3 on page 5-7) or directly using a batch job. Sample JCL for the batch job is contained in member ECSJRASI in the BBSAMP sample library. You can choose which period's data to report, and you can specify an inclusive time frame. Additionally, you can limit the type of data reported by specifying the message type, component, subject, type of action, and whether or not to include detail, information about each action message. These details are contained in the Activity Box of the online Reporting Facility.

To display the Batch Report/Accumulative Statistics Report/Index Report Screen, select Option 1 - Batch Report/Accumulative Statistics Report/Index Report from the Batch Reporting Facility Screen.

Modify the default settings on the Batch Report/Accumulative Statistics Report/Index Report screen by typing over the entries. Fill in the job statement information at the bottom of the screen and press **Enter** to submit the job that generates the report. In the list that follows, the entry names on the screen are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRASI).

Figure 5-3 Batch Report/Accumulative Statistics Report/Index Report Screen

```

USERID L99084          ENERGIZER/CICS          DATE 99/08/02
REL 4.100              BATCH REPORTING FACILITY  TIME 10:13
                                SMF ANALYSIS REPORT SCREEN 125A

OPTION ==>

FUNCTION : SMF SMF DATA SET: SYS1.MAN1
SYST IDENTIFIER:
SIML START DATE: (MM/DD/YY)  PROD START DATE: (MM/DD/YY)
SIML END DATE: (MM/DD/YY)  PROD END DATE: (MM/DD/YY)
SIML START TIME: 0800 (HHMM)  PROD START TIME: 0800 (HHMM)
SIML END TIME: 1800 (HHMM)  PROD END TIME: 1800 (HHMM)
SIML DATE : 08/01/99 (MM/DD/YY)  PROD DATE : 08/02/99 (MM/DD/YY)
FROM TIME : 08.00.00 (HH.MM.SS)  TO TIME : 18.00.00 (HH.MM.SS)
CICS APPLID : CICS JOBNAME :
SIML TRAN NUM : PROD TRAN NUM :
LINENUM : 55 (20 - 100)  SYSOUT CLASS : *

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
==> //L99082BT JOB , 'ALEX', NOTIFY=L99082, MSGLEVEL=(1,1) TYPRUN=HOLD
==>
==>
-----
F1= HELP F2= SPLIT F3= END F4= RETURN F5= F6= F7=
F8= F9= SWAP F10= F11= F12=

```

- **FUNCTION:** Enter the appropriate reporting function. PRINT creates a Batch Report of the action and system informational messages that were captured during the activation of Energizer for CICS. Included in the report is a summary of accumulative statistics based on the selection criteria. PRINTSTAT will produce only the Accumulative Statistics Report. The INDEX function prints a list of the CICS APPLIDs included in the requested Report File with the modes of activation of Energizer for CICS on each day that it was active.

Default: PRINT

Range of values:

- PRINT - Print the Batch Report
- PRINTSTAT - Print the Accumulative Statistics Report
- INDEX - Print the Index Report

Restrictions: None

- **DSNAME:** Enter the data set name of the (first) Report File to use. If multiple Report Files are used (the ADDITIONAL DSNAMES setting is greater than zero) this field is used to specify the first file used. The same DSNAME prefix will be assumed for the additional Report Files.

Default: Current DSNAME on the Dialog Management screen

Format: 1- to 44-character data set name

Restrictions: If multiple Report Files are used, DSNAME cannot exceed 42 characters and the last qualifier cannot exceed 6 characters.

- **APPLID (APPLID):** Enter the VTAM Application ID to select a specific CICS region to be reported. Leave this field blank to report on all the CICS regions included on the Report File.

Default: Blank

Format: 1- to 8-character VTAM Application ID

Restrictions: None

- **FROM DATE (FROMDATE):** Enter the starting date of activity that you want to be reported.

Default: Current date

Format: mm/dd/yy

Restrictions: The FROM DATE is required if FROM TIME is entered.

- **FROM TIME (FROMTIME):** Enter the starting time of activity that you want to be reported.

Default: 00.00.00

Format: hh.mm.ss

Restrictions: The FROM DATE is required if FROM TIME is entered.

- **TO DATE (TODATE):** Enter the ending date of activity that you want to be reported.

Default: Current date

Format: mm/dd/yy

Restrictions: The TO DATE is required if the TO TIME is entered.

- **TO TIME (TOTIME):** Enter the ending time of activity that you want to be reported.

Default: 23.59.59

Format: hh.mm.ss

Restrictions: The TO DATE is required if TO TIME is entered.

- **MESSAGE TYPE (MSGTYPE):** Enter the type of messages that you want to be reported. ACT reports only action messages (ACxxxx), which are descriptions of the activities that were executed in order to enhance CICS performance. EXC reports action messages for exception conditions only (i.e. when Energizer for CICS changed a CICS parameter dynamically, canceled a task, or added resources). WTO reports informational and warning messages (PExxxx/PTxxxx) only.

Default: ALL

Range of Values:

- ALL - All message types
- EXC - Exception condition action messages
- ACT - Action messages
- WTO - Informational and warning messages

Restrictions: None

- **COMPONENT (COMPONENT):** Enter the Energizer for CICS functional component that you want to be reported. The Tuning component will select records associated with tuning activities; the General component will select the other activities.

Default: ALL

Range of Values:

- ALL - All components
- GEN - General
- TUN - Tuning

Restrictions: None

- **SUBJECT (SUBJECT):** Enter the mnemonic code of the Energizer for CICS function that you want to be reported.

Default: ALL

Format: 1- to 8-character mnemonic

Range of Values: ALL - All functions

Table 5-1 Subject Codes

Code	Description
CPUUTIL	CPU Utilization Measurement
DISPATCH	Dispatch Management
DSAUTIL	DSA Utilization Measurement
MAXTASKS	Maxtasks Management
MRODISPC	MRO Dispatch Management
MROQUEUE	MRO/ISC Queue Management
PROGCOMP	Program Compression Management
STORAGE	Storage Management
SUBTASK	VSAM Subtask Management
TASKTIME	Task Time-Out Management
TEMPSTRG	TS Queue Management
TRACE	Trace Management
TRANDATA	TD Queue Management
TRNCLASS	Transaction Class Management
VSAMQ	VSAM Queue Management

Restrictions: None

- **ACTION (ACTION):** Enter the code of the Energizer for CICS action that you want to be reported.

Default: ALL

Format: 2- or 3-character code

Range of Values: ALL - All actions

Table 5-2 Action Codes (Part 1 of 2)

Code	Description
AD	AMXT Decrease
AI	AMXT Increase
AR	Storage Management Report
BA	Temporary Storage Buffer Add
BD	Transient Data Buffer Add
CM	CPU Utilization Measurement
DD	DSALIMIT/EDSALIMIT Decrease
DI	DSALIMIT/EDSALIMIT Increase
DM	DSA Utilization Measurement
DS	Dispatch Parameter Setting
FS	Periodic FCT Scan
MD	Transaction Class Limits Decrease
MI	Transaction Class Limits Increase
MR	Local MRO Dispatch
MS	MRO Parm Value Setting
PC	Program Compression
PR	Program Compression Report
PS	Program Compression Summary
PU	Parameter Update
SA	VSAM String Add
SD	Transient Data String Add
SP	Temporary Storage String Add
TA	Task Abend (For MRO/ISC, VSAM Queue, Task Time-Out, and TS/TD Queue Management)
TC	Trace Level Disable
TO	Trace Level Enable
TR	Trace Management Report
TS	Task Time-Out Summary

Table 5-2 Action Codes (Part 2 of 2)

Code	Description
VD	VSAM Subtask Disable
VE	VSAM Subtask Enable
WL	Dispatch Management
WU	Dispatch Management-Local
XD	MAXTASKS Decrease
XI	MAXTASKS Increase
XP	Remote MRO Dispatch
XR	MAXTASKS Management Report

Restrictions: None

- **DETAILS (DETAILS):** Specify whether to include detailed information about each of the action messages. These are the details contained in the Activity Box of the Online Reporting Facility.

Default: YES

Range of Values: YES/NO

Restrictions: None

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

Default: 55

Range of Values: 20 - 100

Restrictions: None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

Default: *

Range of Values: Output class codes valid for your installation

Restrictions: None

- **ADDITIONAL DSNAMES:** Enter the number of Report Files to use in addition to the Report File specified by DSNNAME. If zero is specified, no additional Report Files will be used. Otherwise, processing will start with the file specified by DSNNAME.

Note: Each Report File will be processed according to the input parameters (independently of the other Report Files). A separate report (or set of reports) will be produced for each Report File.

Default: 0

Range of Values: 0 - 99

Restrictions: If a nonzero value *nn* is specified, Energizer for CICS will assume the existence of *nn* Report Files with the data set name prefix specified by DSNNAME and with a numerical suffix ranging from 01 to *nn* appended to the last qualifier of DSNNAME. For example, if DSNNAME is ENERGIZE.CICS.REPORT and ADDITIONAL DSNAMES is 2, Energizer for CICS will assume the existence of two additional Report Files with the DSNames of ENERGIZE.CICS.REPORT01 and ENERGIZE.CICS.REPORT02.

To print the Batch Report/Accumulative Statistics Report/Index Report using a batch job:

1. Copy the member ECSJRASI from the BBSAMP sample library.
2. Modify the JCL according to your installation standards.
3. Type the data set name of the BMC Software load library in the DSN parameter of the STEPLIB DD statement.
4. Type the data set name of the first Energizer for CICS Report File in the DSN parameter of the REPORT DD statement.

Specify additional Energizer for CICS Report Files by inserting REPORT *n* DD statements, where *n* must start with 1 and be incremented continuously. Up to 99 additional Report Files (REPORT1 to REPORT99) can be used.

Note: Each Report File will be processed according to the input parameters independently of the other Report Files. A separate report (or set of reports) will be produced for each Report File.

5. Enter the selection criteria for the batch reports by typing over the parameters that follow the SYSIN statement.

6. To print only the Accumulative Statistics Report, use the PRINTSTAT function instead of PRINT.
7. To print the Index Report, use the INDEX function.
8. Submit the job.

Figure 5-4 Sample Batch Reporting JCL (Member ECSJRASI)

```
***** Top of Data *****
/*
/* Member: ECSJRASI
/*
/* Accumulative Statistics Report / Index Report
/*
/* Edit the date and time ranges on the SYSIN statements.
/*
/* Edit the following variables:
/* -----
/* energize.cics.BBLINK
/*          The DSN of the BMC Software load library.
/*
/* your.energize.cics.REPORT
/*          The input DSN of the report file.
/*
/*-----*
//HISTRPT EXEC PGM=PI00BTCH,REGION=1M
/*          PARM='PRINT FROMDATE=mm/dd/yy,TODATE=mm/dd/yy'
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SNAPDD DD SYSOUT=*
//SYSIN DD *
PRINT APPLID=applid,
FROMDATE=mm/dd/yy, FROMTIME=hh.mm.ss,
TODATE=mm/dd/yy, TOTIME=hh.mm.ss,
MSGTYPE=ALL, <== Enter EXC for exception data only
COMPONENT=ALL,
SUBJECT=ALL,
ACTION=ALL,
DETAILS=YES,
LINENUM=55
//
***** Bottom of Data *****
```

Figure 5-5 Sample Batch (PRINT) Report

```

BMC SOFTWARE INC.                                E N E R G I Z E R   /   C I C S                                DATE : 12/10/01
REPORT P100BTCH REL 4.3.00                                TIME : 16:00:25
APPLID : CICSPRD1 4.1   B A T C H   R E P O R T I N G   F A C I L I T Y   P R O G R A M                                PAGE :    5

12/06/01 07.36.45 * AC004C: CPU UTILIZATION MEASUREMENT
                      CCPU_U : .....0      SCPU_U : .....80      CCPU_UA : .....0      SCPU_UA : .....92      CCPU_UX : .....2
                      SCPU_UX : .....100     NUM_SAMP: .....20     TOT_TASK: 00000014  NUM_MIRR: 00000000  TASK/SEC: .....0
                      CCPU_UAP: 00000006     N_STRESS: .....20     FAILCODE: 00      FLAGBYTE: A0

12/06/01 07.36.45 * AC005C: DSA UTILIZATION MEASUREMENT
                      NUM_SAMP: .....20     AVG#_TSK: .....16     AV_PRATE: .....0      CDSA_UA : .....12      UDSA_UA : .....0
                      SDSA_UA : .....14     RDSA_UA : .....4      ECDSA_UA : .....34     EUDSA_UA : .....0      ESDSA_UA : .....7
                      ERDSA_UA : .....19     NUM_TASK: .....16     PAGERATE: .....0      CDSA_U : .....12      UDSA_U : .....0
                      SDSA_U : .....15     RDSA_U : .....4      ECDSA_U : .....34     EUDSA_U : .....0      ESDSA_U : .....7
                      ERDSA_U : .....19     FREEB_U : .....64     FREEA_U : .....50     FREEB_UA : .....65     FREEA_UA : .....50

12/06/01 07.36.45 * AC034C: MAXTASKS MANAGEMENT REPORT
                      ORG_MXT : .....20     PRV_MXT : .....20     CUR_MXT : .....20     TOT_TSKS: .....16     CCPU_U : .....0
                      CDSA_U : .....12      UDSA_U : .....0      SDSA_U : .....15     RDSA_U : .....4      ECDSA_U : .....34
                      EUDSA_U : .....0      ESDSA_U : .....7     ERDSA_U : .....19     FLAG8 : 00      CSASOSI : 00
                      CSAKCM1 : 10      PRV_#SOS: 00000000    CUR_#SOS: 00000000    PRV_#MXT: 00000000    CUR_#MXT: 00000000
                      CCPU_UH : .....80     DSA_UH : .....90     MIN_MXT : .....11     MAX_MXT : .....30

12/06/01 07.36.45 * AC032C: STORAGE MANAGEMENT REPORT
                      CUR_LIMB: 8704K      MAX_LIMB: 9692K      CUR_LIMA: 24M      MAX_LIMA: 52M      PAGERATE: .....0
                      CDSA_U : .....12      UDSA_U : .....0      SDSA_U : .....15     RDSA_U : .....4      ECDSA_U : .....34
                      EUDSA_U : .....0      ESDSA_U : .....7     ERDSA_U : .....19     FREEB_U : .....64     FREEA_U : .....50
                      NUM_TASK: .....16     CCPU_U : .....0      #CH_LIMB: .....0     #CH_LIMA: .....0     FLAG4 : 00

12/06/01 07.36.45 * AC033C: PROGRAM COMPRESSION MANAGEMENT REPORT
                      CUR_SFAC: ..50      PROG_CMP: .....0      CDSA_U : .....12     ECDSA_U : .....34      SDSA_U : .....15
                      ESDSA_U : .....7      RDSA_U : .....4      ERDSA_U : .....19     PRV_#SOS: 00000000    CUR_#SOS: 00000000
                      CSASOSI : 00      SFAC_L : ..45      SFAC_H : ..85      DSA_UH : ..85      ED_SA_UH : ..95
                      PROG_NIU: ..132     CCPU_U : .....0      PROG_LD : 00000010

12/06/01 07.36.45 * AC035C: TRACE MANAGEMENT REPORT
                      TRACELVL: .....5     CCPU_U : .....0      SCPU_U : .....80     NUM_CPUS: .....3     CPU_UL : .....55
                      CPU_UH : .....65     CPU : SYSTEM

12/06/01 07.36.45 * AC026C: REMOTE MRO DISPATCH
                      INTERVAL: 0000EA63    ACTIVE : 00000000    WAIT/SEC: .....4     ELIG_21 : 00000000    SELCT_21: 00000000
                      SIGNEDON: .....6      ELIG_3X : 00000000    SELCT_3X: 00000000    ELIG_41 : 00000000    SELCT_41: 00000000
                      POSTBP_0: 00000000     POST_EEC: 00000000    MULT_ACT: 00000000    ACT_SYS : 00000000    R_POSTSW: 00000000
                      R_POSTSE: 00000000     FLAG : 08      LIMIT_1 : ....40     LIMIT_2 : .....25     ERROR_2 : 0000
                      ERROR_3 : 0000      ERROR_4 : 0000      DISP_ACT: .22783

12/06/01 07.36.45 * AC036C: DISPATCH PARAMETER SETTING
                      INTERVAL: 0000EA63    ACTIVE : 00000A00    WAIT/SEC: .....4     SIMLMODE: 00000000    CCPU_UX : .....2
                      CCPU_UL : .....10     ELIGIBLE: 00000000    MIN_XCOM: .....10    T_STRESS: 0000098D    SET_TO_1: 00000A00
                      SET_TO_2: 00000000     SET_TO_3: 00000000    SET_TO_4: 00000000    SET_TO_5: 00000000    SET_TO_6: 00000000
                      SET_TO_7: 00000000     NUM_AOR : 00000000    CDP_GT1 : 00000000    R_POSTSW: 00000000    FLAG : 08
                      LIMIT3 : .....2      LIMIT4 : .....99

```

Figure 5-6 Sample Accumulative Statistics Report

```

BMC Software                                ENERGIZER/CICS DATE: 08/05/99
REPORT P100BTCH REL 4.100                  TIME: 11:39:42
APPLID : CICS41 4.1 BATCH REPORTING FACILITY PROGRAM
                        ACCUMULATIVE STATISTICS
                                           PAGE: 9

ST021 : STARTED : DATE 06/20/99 TIME 13.29.07
ST022 : ENDED   : DATE 07/12/99 TIME 17.10.53

ST066 : STORAGE : MAXIMUM DSALIMIT VALUE..5888K <07/08/99 17.08.19>
ST067 : STORAGE : MINIMUM DSALIMIT VALUE..5120K <
ST068 : STORAGE : # TIMES DSALIMIT CHANG..00006
ST066 : STORAGE : MAXIMUM EDSALIMIT VALUE....27M <07/08/99 17.10.18>
ST067 : STORAGE : MINIMUM EDSALIMIT VALUE....20M <
ST068 : STORAGE : # TIMES EDSALIMIT CHANG..00007

ST071 : TASKTIME : NUMBER OF TASKS PURGED.0000034

ST072 : TRNCLASS : CLASS DFHTCL01: MAXACTIVE INCREASE.....00000
ST073 : TRNCLASS : CLASS DFHTCL01: MAXACTIVE DECREASE.....00002
ST074 : TRNCLASS : CLASS DFHTCL01: PURGETHRESH INCREASE.....00000
ST075 : TRNCLASS : CLASS DFHTCL01: PURGETHRESH DECREASE.....00000

ST058 : VSAMQ : FILE PEPARMS : STR ADD...0000 TASK ABENDS..0001
ST058 : VSAMQ : FILE CNSL0001: STR ADD...0003 TASK ABENDS..0014

ST043 : SUBTASK : TRANSITIONS TO "NO SUBT"..0013
ST044 : SUBTASK : TRANSITIONS TO "PUT" LVL..0000
ST045 : SUBTASK : TRANSITIONS TO "GET" LVL..0000
ST048 : SUBTASK : TOTAL TRANSITIONS.....00013
ST047 : SUBTASK : MAXIMUM LEVEL SET.....2 <06/22/99 13.29.07>

ST049 : DISPATCH : AVG NUM MVS WAITS/SEC....00002
ST050 : DISPATCH : MAX NUM MVS WAITS/SEC....00003 <06/29/99 12.41.29>
ST051 : DISPATCH : MIN NUM MVS WAITS/SEC....00002 <06/28/99 16.33.43>

ST001 : PROGCOMP : MAX STORAGE FACTOR PERCENT..85 <07/08/99 17.10.34>
ST002 : PROGCOMP : MIN STORAGE FACTOR PERCENT..50 <
ST003 : PROGCOMP : NUM TIMES FACTOR CHANGED.00080
ST004 : PROGCOMP : TOTAL NUM PROGRAMS COMP.000048
ST005 : PROGCOMP : CDSA : AVG BYTES COMP...00005 (KBYTES)
ST005 : PROGCOMP : ECDSA : AVG BYTES COMP...00002 (KBYTES)
ST005 : PROGCOMP : SDSA : AVG BYTES COMP...00000 (KBYTES)
ST005 : PROGCOMP : ESDSA : AVG BYTES COMP...00000 (KBYTES)
ST005 : PROGCOMP : RDSA : AVG BYTES COMP...00000 (KBYTES)
ST005 : PROGCOMP : ERDSA : AVG BYTES COMP...00002 (KBYTES)

PE580 : NUMBER OF RECORDS READ 5824
PE581 : NUMBER OF SLOTS SELECTED 33431
PE582 : NUMBER OF APPLIDS SELECTED 1
PE562 : FUNCTION SUCCESSFULLY COMPLETED

```

Figure 5-7 Sample Index Report

BMC Software				ENERGIZER/CICSDATE:07/12/99		
REPORT P100BTCH REL 4.100				TIME:15:02:35		
APPLID : CICSPROD 4.1				BATCH REPORTING FACILITY PROGRAM		
INDEX STATISTICS				PAGE: 2		
DATE	DAY OF WEEK	FROMTIME	TOTIME	MODE	INTERVALS	TRANSACTIONS PER INTERVAL
PE584 : APPLID : CICSPROD						
05/12/99	WEDNESDAY	06.41.22	18.01.38	SIML	69	4331
05/14/99	FRIDAY	06.39.59	18.00.20	SIML	69	2910
05/17/99	MONDAY	06.42.49	17.52.57	SIML	68	4492
05/18/99	TUESDAY	06.43.26	17.53.34	SIML	68	4618
05/19/99	WEDNESDAY	06.40.59	18.01.11	SIML	69	4490
05/20/99	THURSDAY	06.43.01	17.53.10	SIML	68	4501
05/21/99	FRIDAY	06.42.47	17.53.02	SIML	68	3533
05/25/99	TUESDAY	06.41.32	18.01.48	SIML	69	4481
05/26/99	WEDNESDAY	06.40.48	18.01.00	SIML	69	4378
05/27/99	THURSDAY	06.41.39	18.01.51	SIML	69	4450
05/28/99	FRIDAY	06.39.58	18.00.15	SIML	69	3620
05/31/99	MONDAY	06.41.59	07.01.59	SIML	3	1309
05/31/99	MONDAY	07.12.49	17.52.58	PROD	65	5085
06/01/99	TUESDAY	06.41.17	18.01.22	PROD	69	4559
06/02/99	WEDNESDAY	06.41.51	18.01.57	PROD	69	4679
06/03/99	THURSDAY	06.41.20	18.01.30	PROD	69	4745
06/04/99	FRIDAY	06.40.28	18.00.34	PROD	69	4083
06/07/99	MONDAY	06.42.59	17.53.05	PROD	68	4970
06/08/99	TUESDAY	06.52.58	17.53.07	PROD	67	5026
06/09/99	WEDNESDAY	06.41.58	18.02.10	PROD	69	4450
PE580 : NUMBER OF RECORDS READ				11996		
PE581 : NUMBER OF SLOTS SELECTED				27310		
PE582 : NUMBER OF APPLIDS SELECTED				1		
PE562 : FUNCTION SUCCESSFULLY COMPLETED						

CICS Performance Comparison Worksheet

The CICS Performance Comparison Worksheet provides hardcopy statistical information about the performance of the CICS system during user-specified peak workload periods with and without the execution of Energizer for CICS. It extracts data from the operational and statistical records in the Energizer for CICS Report File that were accumulated during the activation of the Energizer for CICS functions in both Production and Simulation modes.

Note: All functions activated must be in the same mode as the Dispatch Management function.

Use this report for an evaluation of the improvement in CICS performance achieved with Energizer for CICS.

The CICS Performance Comparison Worksheet report can be generated from either the CICS Performance Comparison Worksheet screen (Figure 5-9 on page 5-24) or directly by using a batch job. Sample JCL (Figure 5-10 on page 5-28) for the batch job is contained in member ECSJRPCS in the BBSAMP sample library. You specify a time frame (up to a few hours) of peak workload during a period of one or more days when Energizer for CICS functions were activated in Production Mode and also a time frame of a similar workload during a period of one or more days when Energizer for CICS functions were activated in Simulation Mode.

Note: Be careful to compare periods with similar workloads and transaction mixes. Specify time frames that represent the real peak workloads. When comparing longer periods, be sure to omit weekends, holidays, and days with low activity. Make sure that the Reporting Interval (set on the General Parameters screen in the Parameters Facility) is the same for both the Production and Simulation periods. See “General Parameters Screen (I101)” on page 2-17.

An Index Report (Figure 5-7 on page 5-17) listing the exact time frames used for the worksheet and an abbreviated Accumulative Statistics Report (Figure 5-6 on page 5-16) are printed along with the CICS Performance Comparison Worksheet.

If multiple APPLIDs are handled by the Performance Comparison Worksheet job, this set of reports is produced for each APPLID that is handled. A Worksheet Summary Report (Figure 5-11 on page 5-29) is also produced, summarizing the combined performance improvement for all the CICS regions.

The CICS Performance Comparison Worksheet provides the following data for both the Production and Simulation periods:

Peak-Period CICS Performance Analysis

- **AVERAGE CICS CPU:** The average CICS CPU utilization for the period. This is the sum of the average CICS CPU utilizations reported divided by the number of reporting intervals contained in the period.
- **MAXIMUM CICS CPU:** The maximum CICS CPU utilization reported during the period.
- **AVERAGE MAXIMUM CICS CPU:** The average maximum CICS CPU utilization for the period. This is the sum of the maximum CICS CPU utilizations reported divided by the number of reporting intervals contained in the period.

- **AVERAGE SYSTEM CPU:** The average CPU utilization of the whole MVS site for the period. This is the sum of the average system CPU utilizations reported divided by the number of reporting intervals contained in the period.
- **MAXIMUM SYSTEM CPU:** The maximum system CPU utilization reported for the period.
- **AVERAGE MAXIMUM SYSTEM CPU:** The average maximum CPU utilization of the whole MVS for the period. This is the sum of the maximum system CPU utilizations reported divided by the number of reporting intervals contained in the period.

Note: CICS CPU utilization is based on the utilization of one processor in the complex and may exceed 100%. System CPU is the CPU utilization of the entire complex. A system CPU utilization value of over 100% indicates 100% CPU utilization plus the number of users waiting for the CPU.

- **TOTAL TRANSACTIONS PROCESSED:** The total number of transactions processed during the period including both mirror (CSMI) transactions and non-mirror transactions.
- **TOTAL TRANSACTIONS NORMALIZED:** The total number of transactions processed during the period, normalized to the smaller number of intervals reported, including both mirror (CSMI) transactions and non-mirror transactions.
- **CSMI (MIRROR) TRANSACTIONS:** The total number of mirror (CSMI) transactions processed during the period.
- **NET TRANSACTIONS (TOTAL LESS CSMI):** The total number of non-CSMI transactions processed during the period.

Note: Energizer for CICS significantly reduces the number of mirror tasks. Therefore, the two net transaction figures represent a more accurate comparison between the two periods.

- **TOTAL TRANSACTIONS PER INTERVAL:** The average number of transactions processed during the period including both mirror (CSMI) transactions and non-mirror transactions. This is the total number of transactions reported divided by the number of reporting intervals contained in the period.
- **CSMI TRANSACTIONS PER INTERVAL:** The average number of CSMI transactions processed during an interval. This is the total number of CSMI transactions reported divided by the number of reporting intervals contained in the period.

- **NET TRANSACTIONS PER INTERVAL:** The average number of non-CSMI transactions processed during an interval. This is the total number of non-CSMI transactions reported divided by the number of reporting intervals contained in the period.
- **TRANSACTIONS PER CICS CPU MINUTE:** The number of transactions processed per CICS CPU minute for the period. This calculation divides the net number of transactions per interval by the average number of CICS CPU minutes per interval.
- **IMPROVEMENT:** This is the most significant measure of performance improvement achieved with Energizer for CICS. It shows (in percents) how many more transactions were processed per CICS CPU minute during the period when Energizer for CICS was running in Production Mode. This field is displayed between the PROD and SIML figures for TRANSACTIONS PER CICS CPU MINUTE.
- **AVG CICS CPU PER TRANSACTION:** The average CICS CPU utilization per processed transaction for the period. This calculation divides the sum of the average CICS CPU utilizations for the period by the net number of transactions for the period.

Note: This figure may be significantly higher than the CPU per task figure reported by an installed performance monitor. Energizer for CICS takes into account all components of CPU: application, monitor, database, VSAM subtasking, and CICS overhead. This figure is a true measure of the CPU that CICS uses.

- **AVERAGE WAITS PER SECOND:** The average number of MVS waits per second issued by CICS for the period. This is the sum of the waits reported divided by the number of reporting intervals contained in the period.
- **MAXIMUM WAITS PER SECOND:** The maximum number of reported MVS waits per second issued by CICS for the period.
- **MINIMUM WAITS PER SECOND:** The minimum number of report MVS waits per second issued by CICS for the period.
- **# TIMES VSAM SUBTASKING ACTIVATED:** The total number of times VSAM Ssubtasking was activated during the period.

Figure 5-8 Peak-Period CICS Performance Analysis Sample Report

```

BMC SOFTWARE INC.                      E N E R G I Z E R   /   C I C S                      DATE : 10/08/01
REPORT P100BTCH REL 4.2.00              TIME : 11:41:14
APPLID : CICSPRD1 5.3  B A T C H   R E P O R T I N G   F A C I L I T Y   P R O G R A M
                                W O R K S H E E T           S T A T I S T I C S           PAGE :      1

      PERFORMANCE COMPARISON WORKSHEET
      WITH/WITHOUT ENERGIZER FOR CICS
CICS NAME: CICSPRD1 - CICS RELEASE: 5.3 - ENERGIZER RELEASE: 4.200
PEAK PERIOD INFORMATION
      DATE                10/04/01                09/27/01
      DAY OF WEEK         THURSDAY                 THURSDAY
      START TIME          09.08.44                 09.01.41
      END TIME            15.58.38                 15.51.38
      NUMBER OF REPORTING INTERVALS      .....42      .....42

PEAK PERIOD CICS PERFORMANCE ANALYSIS
CICS CPU
      AVERAGE CICS CPU                67.2                56.6
      MAXIMUM CICS CPU                ....192              ....159
      AVERAGE MAXIMUM CICS CPU        124.7                101.6
SYSTEM CPU
1.  AVERAGE SYSTEM CPU                96.5                95.5
      MAXIMUM SYSTEM CPU              ....100              ....100
      AVERAGE MAXIMUM SYSTEM CPU      100.0                100.0
      TOTAL TRANSACTIONS PROCESSED    ..388583            ..289909
      TOTAL TRANSACTIONS NORMALIZED   ..388583            ..289909
      CSMI (MIRROR) TRANSACTIONS      ....633             ....525
      NET TRANSACTIONS (TOTAL LESS CSMI) ..387950          ..289384
      TOTAL TRANSACTIONS PER INTERVAL   ...9251             ...6902
      CSMI TRANSACTIONS PER INTERVAL    ....15              ....12
      NET TRANSACTIONS PER INTERVAL     ...9236             ...6890
      IMPROVEMENT
      TRANSACTIONS PER CICS CPU MINUTE   ...1373            12.7% ...1218
2.  AVG CICS CPU PER TRANSACTION      0.0072805          0.0082084
      AVERAGE WAITS PER SECOND         ....306            ....363
      MAXIMUM WAITS PER SECOND          ....463            ....629
      MINIMUM WAITS PER SECOND          ....164            ....28
      # TIMES VSAM SUBTASKING ACTIVATED   ....85             ....0
PEAK PERIOD CICS AVAILABILITY ANALYSIS
      NUMBER OF SOS CONDITIONS          .....1             .....0
      NUMBER OF MXT CONDITIONS          .....0             .....0
      PROGRAMS LOADED PER INTERVAL      ....32             ....31
      PROGRAMS COMPRESSED PER INTERVAL   ....35             ....35
      PROGRAMS DELETED PER INTERVAL      .....0             .....0
      MAX NOT-IN-USE COUNT (NIU)        ...1511            ...1481
      AVG NOT-IN-USE COUNT (NIU)        ...1013            ...1180
-----
1. ENERGIZER MAXIMIZES TOTAL SYSTEM THROUGHPUT BY MINIMIZING OP SYSTEM
   DISPATCHING INTERRUPTS AND ITS ASSOCIATED OVERHEAD FOR CICS, BATCH,
   TSO. CHECK THE ENERGIZER BATCH/TSO REPORT FOR INCREASED THROUGHPUT.
   CHECK YOUR PERFORMANCE REPORTS FOR INCREASED THROUGHPUT IN
   YOUR OTHER CICS REGIONS, DATABASE AND STARTER TASKS SUCH AS ROSCOE.
2. CPU PER TASK IS PROBABLY SIGNIFICANTLY HIGHER THAN REPORTED BY YOUR
   PERFORMANCE MONITOR. ENERGIZER CPU INCLUDES TOTAL CPU USED BY CICS
   ADDRESS SPACE:
   CICS, DATABASE, VSAM SUBTASK AND PERFORMANCE MONITORING OVERHEAD.
   THIS USAGE IS NOT INCLUDED IN THE CPU PER TASK FIGURE REPORTED BY
   YOUR PERFORMANCE MONITOR.
ST061 : WORKSHEET REPORT SUCCESSFULLY COMPLETED

```

Peak-Period CICS Availability Analysis

- **NUMBER OF SOS CONDITIONS:** The total number of Short-On-Storage conditions encountered during the period.
- **NUMBER OF MXT CONDITIONS:** The total number of MAXTASKS conditions encountered during the period.
- **PROGRAMS LOADED PER INTERVAL:** The average number of programs loaded by CICS during the period. This is the sum of the program loads reported divided by the number of reporting intervals contained in the period.
- **PROGRAMS COMPRESSED PER INTERVAL:** The average number of programs compressed by CICS during the period. This is the sum of all program compressions reported divided by the number of reporting intervals contained in the period. The total number reported for the period includes program compressions forced by Energizer for CICS plus those programs that are compressed normally by CICS between activations of the Program Compression Management function.
- **PROGRAMS DELETED PER INTERVAL:** The average number of programs compressed by CICS because of Energizer for CICS during the period. This is the sum of the program deletions reported divided by the number of reporting intervals contained in the period. The total number of program deletions reported for the period includes only program compressions forced by Energizer for CICS.

Worksheet Summary Report

The Worksheet Summary Report (Figure 5-11 on page 5-29) is produced when multiple APPLIDs are handled by the Performance Comparison Worksheet job. This report summarizes the combined performance improvement for all the CICS regions reported by the job. The data items shown for each CICS region are taken from the matching data items in the Performance Comparison Worksheet belonging to that region and which is printed earlier in the job. The Worksheet, together with the Index Report preceding it, also show the exact time frame used in the calculations.

The following data is provided for each CICS region listed:

- **CICS NAME:** The VTAM APPLID of the reported CICS region.
- **CICS RELEASE:** The version and release of the reported CICS region.

- **ENERGIZER RELEASE:** The release of Energizer for CICS used by the reported CICS region.
- **AVG CICS CPU - PROD:** The average CICS CPU utilization for the period that Energizer for CICS was active in Production Mode.
- **NUMBER OF SOS CONDITIONS - PROD:** The total number of Short-On-Storage conditions encountered by CICS during the period that Energizer for CICS was active in Production Mode.
- **NUMBER OF SOS CONDITIONS - SIML:** The total number of Short-On-Storage conditions encountered by CICS during the period that Energizer for CICS was active in Simulation Mode.
- **NUMBER OF MXT CONDITIONS - PROD:** The total number of MAXTASKS conditions encountered by CICS during the period Energizer for CICS was active in Production Mode.
- **NUMBER OF MXT CONDITIONS - SIML:** The total number of MAXTASKS conditions encountered by CICS during the period Energizer for CICS was active in Simulation Mode.
- **TRANSACTIONS PER CICS CPU MINUTE - PROD:** The number of transactions processed per CICS CPU minute for the period during which Energizer for CICS was active in Production Mode.
- **TRANSACTIONS PER CICS CPU MINUTE - SIML:** The number of transactions processed per CICS CPU minute for the period during which Energizer for CICS was active in Simulation Mode.
- **IMPROVEMENT IN CPU PER TRANSACTION:** The percentage of decrease in the average CICS CPU utilization per processed transaction during the period Energizer for CICS was active in Production Mode compared to the period that Energizer for CICS was active in Simulation Mode.

In addition, the report lists the total number of CICS regions reported and the total improvement in the CICS CPU utilization per processed transaction. This is the average of improvement in CPU per transaction for the reported CICS regions, weighted by the average CPU utilization of each region.

Note: This calculation assumes that all CICS regions are running on CPUs of equal processing power.

1. To access the CICS Performance Comparison Worksheet screen, select Option 2, from the Batch Reporting Facility Screen.

Figure 5-9 CICS Performance Comparison Worksheet Screen

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             BATCH REPORTING FACILITY  TIME 16:49
                   BATCH REPORT/ACCUMULATIVE STATISTICS REPORT/INDEX REPORT I21
OPTION ==>

FUNCTION : PRINT      (PRINT, PRINTSTAT, INDEX)
DSNAME   : energize.cics report file
APPLID   :           (BLANK FOR ALL APPLID'S)
FROM DATE : 08/02/99 (MM/DD/YY)      FROM TIME : 00.00.00 (HH.MM.SS)
TO DATE   : 08/02/99 (MM/DD/YY)      TO TIME   : 23.59.59 (HH.MM.SS)
MESSAGE TYPE : ALL    (ALL, EXC, ACT, WTO)
COMPONENT : ALL
SUBJECT   : ALL
ACTION    : ALL
DETAILS   : YES      (YES, NO)      LINENUM : 55 (20 - 100)
SYSOUT CLASS : *      ADDITIONAL DSNAME : 0 (0 - 99)

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
==>
==>
==>
-----
F1= HELP  F2= SPLIT F3= END   F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=      F11=      F12=

```

2. Modify the default settings on the CICS Performance Comparison Worksheet screen by typing over the entries.
3. Fill in the job statement information at the bottom of the screen and press **Enter** to generate the report.

In the following list, the screen names are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRPCS):

- **FUNCTION: WORKSHEET** is the function parameter.
- **DSNAME:** Enter the data set name of the first Report File to use. If multiple Report Files are used (the ADDITIONAL DSNAME setting is greater than zero) this is the first file used. The same DSNAME prefix will be assumed for the additional Report Files.

Default: Current DSNAME on the Dialog Management screen

Format: 1- to 44-character data set name

Restrictions: If multiple Report Files are used, DSNAME cannot exceed 42 characters and the last qualifier cannot exceed 6 characters.

- **APPLID (APPLID):** Enter the VTAM APPLID for the CICS region that you want to be reported. Leave this field *blank* to report on all of the CICS regions included on the Report File.

Default: Blank

Format: 1- to 8-character VTAM Application ID

Restrictions: None

- **PROD DATE (PRODDATE):** Enter the date of the first (or only) peak period when Energizer for CICS was activated in Production Mode.

Default: Current date

Format: mm/dd/yy

Restrictions: PROD DATE must be less than or equal to PROD TO DATE.

- **PROD TO DATE (PRODTDATE):** Enter the date of the last (or only) peak period when Energizer for CICS was activated in Production Mode.

Default: Current date

Format: mm/dd/yy

Restrictions: PROD TO DATE must be greater than or equal to PROD DATE.

- **PROD FROM TIME (PRODFROMT):** Enter the starting time of the peak period when Energizer for CICS was activated in Production Mode.

Note: Do not include the first interval that Energizer for CICS was active because many of its CPU-saving services are not yet functional.

Default: Current date

Format: hh.mm.ss

Restrictions: PROD FROM TIME must be less than PROD TO TIME.

- **PROD TO TIME (PRODTOT):** Enter the ending time of the peak period when Energizer for CICS was activated in Production Mode.

Default: 23.59.59

Format: hh.mm.ss

Restrictions: PROD TO TIME must be greater than PROD FROM TIME.

- **SIML DATE (SIMLDATE):** Enter the date of the first (or only) peak period when Energizer for CICS was activated in Simulation Mode.

Default: Current date

Format: mm/dd/yy

Restrictions: SIML DATE must be less than or equal to SIML TO DATE.

- **SIML TO DATE (SIMLTDATE):** Enter the date of the last (or only) peak period when Energizer for CICS was activated in Simulation Mode.

Default: Current date

Format: mm/dd/yy

Restrictions: SIML TO DATE must be greater than or equal to SIML DATE.

- **SIML FROM TIME (SIMLFROMT):** Enter the starting time of the peak period when Energizer for CICS was activated in Simulation Mode.

Default: 00.00.00

Format: hh.mm.ss

Restrictions: SIML FROM TIME must be less than SIML TO TIME.

- **SIML TO TIME (SIMLTOT):** Enter the ending time of the peak period when Energizer for CICS was activated in Simulation Mode.

Default: 23.59.59

Format: hh.mm.ss

Restrictions: SIML TO TIME must be greater than SIML FROM TIME.

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

Default: 55

Range of Value: 20 - 100

Restrictions: None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

Default: *

Range of Value: Output class codes valid for your installation

Restrictions: None

- **ADDITIONAL DSNAMES:** Enter the number of Report Files to use in addition to the Report File specified by DSNNAME. If zero is specified, no additional Report Files will be used. Otherwise, processing will start with the file specified by DSNNAME.

Note: Each Report File will be processed according to the input parameters (independently of the other Report Files). A separate report (or set of reports) will be produced for each Report File.

Default: 0

Range of Values: 0 - 99

Restrictions: If a nonzero value *nn* is specified, Energizer for CICS will assume the existence of *nn* Report Files with the data set name prefix specified by DSNNAME and with a numerical suffix ranging from 01 to *nn* appended to the last qualifier of DSNNAME. For example, if DSNNAME is ENERGIZE.CICS.REPORT and ADDITIONAL DSNAMES is 2, Energizer for CICS will assume the existence of 2 additional Report Files with the DSNAMES of ENERGIZE.CICS.REPORT01 and ENERGIZE.CICS.REPORT02.

Warning! Be careful to specify dates and times with comparable workloads and transaction mixes and when all active functions were in the same mode as the Dispatch Management function. When comparing longer periods, be sure to omit weekends, holidays and days with low activity. To omit periods of low activity, run multiple reports to select the peak periods.

Warning! If the range of dates specified by PROD DATE and PROD TO DATE or by SIML DATE and SIML TO DATE are too large, counter overflow might occur. In such a case, specify shorter periods for comparison.

To print the CICS Performance Comparison Worksheet using a batch job:

1. Copy the member ECSJRPCS from the BBSAMP sample library.
2. Modify the JCL according to your installation standards.

3. Type the data set name of the BMC Software load library in the DSN parameter of the STEPLIB DD statement.
4. Type the data set name of the (first) Energizer for CICS Report File in the DSN parameter of the REPORT DD statement.

Specify additional Energizer for CICS report files by inserting REPORT *n* DD statements, where *n* must start with 1 and be incremented continuously. Up to 99 additional Report Files (REPORT1 to REPORT99) can be used.

Note: Each Report File will be processed according to the input parameters independently of the other Report Files. A separate report (or set of reports) will be produced for each Report File.

5. Enter the selection criteria for the Performance Comparison Worksheet by typing over the parameters that follow the SYSIN statement.
6. Submit the job.

Figure 5-10 Sample CICS Performance Comparison Worksheet JCL (Member ECSJRPCS)

```
***** Top of Data *****
/*
/* Member: ECSJRPCS
/*
/* Performance Comparision Worksheet Report
/*
/* Edit the date and time ranges on the SYSIN statements.
/*
/* Edit the following variables:
/* -----
/* energize.cics.BBLINK
/*      The DSN of the BMC Software load library.
/*
/* your.energize.cics.REPORT
/*      The input DSN of the report file.
/*
/* cics-applid
/*      The CICS Application Id to be selected.
/*
/* -----*
//PERFRPT EXEC PGM=PI00BTCH,REGION=1M
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SNAPDD DD SYSOUT=*
//SYSIN DD *
      WORKSHEET APPLID=cics-applid,LINENUM=55,
      PRODDATE=mm/dd/yy,PRODTDATE=mm/dd/yy,
      PRODFROMT=hh.mm.ss,PRODTOT=hh.mm.ss,
      SIMLDATE=mm/dd/yy,SIMLTDATE=mm/dd/yy,
      SIMLFROMT=hh.mm.ss,SIMLTOT=hh.mm.ss
//
***** Bottom of Data *****
```

Figure 5-11 Sample Worksheet Summary Report

```

(CICS 4.1 and above)

BMC Software                      ENERGIZER/CICS                      DATE:07/26/99
REPORT P100BTCH REL 4.100        BATCH REPORTING FACILITY PROGRAM    TIME:13:41:41
                                WORKSHEET SUMMARY                      PAGE:      14

                                ANALYSIS OF PERFORMANCE IMPROVEMENT
                                FOR SPECIFIED CICS(S)

CICS | CICS | ENERGIZER | AVG CICS | NUMBER SOS | NUMBER MXT | TRAN PER CICS | IMPROV.
NAME | RELEASE | RELEASE | CPU | CONDITIONS | ONDITIONS | CPU MINUTE | IN CPU
      |      |      |      |      |      |      |      | PER
      |      |      |      | PROD | PROD | SIML | PROD | SIML | PROD | SIML | TRAN
=====
CICSA  3.3   4.100   6.7%    0     0     1    21   1577   1539   2.4%
CICSN  3.3   4.100  12.8%    0     0     0     7   1176    960  22.4%
CICSP  3.3   4.100  14.8%    0    23     0     0   2112   1782  18.5%
CICST  3.3   4.100  10.1%    0     0    14   478   6286   5668  10.9%

NUMBER OF CICS(S) PROCESSED..... 4

TOTAL IMPROVEMENT (WEIGHTED BY CPU UTILIZATION)..... 15.2%

ST081 : WORKSHEET SUMMARY REPORT SUCCESSFULLY COMPLETED

```

CICS Automated Performance Comparison Worksheet

The CICS Automated Performance Comparison Worksheet provides hardcopy statistical information about the performance of the CICS system during *automatically identified* peak-workload periods with and without the execution of Energizer for CICS. It extracts data from the operational and statistical records in the Energizer for CICS Report File that were accumulated during the activation of the Energizer for CICS functions in both Production and Simulation modes.

Note: All functions activated must be in the same mode as the Dispatch Management function.

Use this function to obtain pairs of peak-workload periods with similar workloads that can be used to evaluate the performance improvement achieved with Energizer for CICS.

The CICS Automated Performance Comparison Worksheet can be generated from either the CICS Automated Performance Comparison Worksheet screen (Figure 5-12 on page 5-31) or directly using a batch job. Sample JCL (Figure 5-13 on page 5-35) for the batch job is contained in member ECSJRAPC in the BBSAMP sample library.

You specify the starting and ending dates and times of Energizer for CICS activity that is to be analyzed. Energizer for CICS automatically identifies the peak-workload periods with comparable workloads and generates the Sample List of Comparable Peak Workload Periods (Figure 5-14 on page 5-36), which includes sample pairs of Production and Simulation periods along with the performance improvement achieved by Energizer for CICS for each pair of periods. A CICS Performance Comparison Worksheet (Figure 5-9 on page 5-24, along with an Index Report (Figure 5-7 on page 5-17), are then produced for the best pair. At the end of the report, there is an abbreviated Accumulative Statistics Report (Figure 5-6 on page 5-16), containing the statistical records that were selected for the worksheet.

Note: The CICS Automated Performance Comparison Worksheet will only take into account days in which the functions were active between 8.00 A.M. and 8.00 P.M.

If data for multiple APPLIDs is found in the input Report File, the Index Report, the CICS Performance Comparison Worksheet, and the Accumulative Statistics Report are produced for each APPLID, using the same best pair of Production/Simulation periods. A Worksheet Summary Report is also produced, summarizing the combined performance improvement for all the CICS regions during those periods.

Note: Make sure that the Reporting Interval (set on the General Parameters screen in the Parameters Facility) is the same for both the Production and Simulation periods. See “General Parameters Screen (I101)” on page 2-17.

The Sample List of Comparable Periods (Figure 5-14 on page 5-36) provides the following data for each pair of peak-workload Production/Simulation periods:

- **PRODDATE:** The starting date of the peak-workload period when Energizer for CICS was activated in Production Mode.
- **PRODDATE:** The ending date of the peak-workload period when Energizer for CICS was activated in Production Mode.
- **SIMLDATE:** The starting date of the peak-workload period when Energizer for CICS was activated in Simulation Mode.
- **SIMLDATE:** The ending date of the peak-workload period when Energizer for CICS was activated in Simulation Mode.
- **FROMTIME:** The starting time of both the Production Mode and Simulation Mode peak-workload periods.

- **TOTIME:** The ending time of both the Production Mode and Simulation Mode peak-workload periods.
- **IMPROVEMENT:** The percentage of improvement in the TRANSACTIONS PER CICS CPU MINUTE figure from the peak-workload period when Energizer for CICS was activated in Simulation Mode to the peak-workload period when Energizer for CICS was activated in Production Mode.
- **TRANSACTIONS PER INTERVAL (PROD):** The average number of transactions processed per interval during the peak-workload period when Energizer for CICS was activated in Production Mode.

Note: This is the net transactions per interval figure.

- **TRANSACTIONS PER INTERVAL (SIML):** The average number of transactions processed per interval during the peak-workload period when Energizer for CICS was activated in Simulation Mode.

Note: This is the net transactions per interval figure.

1. To access the CICS Automated Performance Comparison Worksheet screen, select Option 3, from the Batch Reporting Facility screen.

Figure 5-12 CICS Automated Performance Comparison Worksheet Screen

```

USERID  L99087                ENERGIZER/CICS          DATE  99/08/02
REL    4.100                  BATCH REPORTING FACILITY  TIME  16:53
                                      CICS PERFORMANCE COMPARISON WORKSHEET      122
OPTION  ==>

FUNCTION      : WORKSHEET
DSNAME       : energize.cics report file
APPLID       : (BLANK FOR ALL APPLID'S)
PROD DATE    : 08/02/99 (MM/DD/YY)   PROD TO DATE: 08/02/99 (MM/DD/YY)
PROD FROM TIME : 00.00.00 (HH.MM.SS)
PROD TO TIME   : 23.59.59 (HH.MM.SS)
SIML DATE     : 08/02/99 (MM/DD/YY)   SIML TO DATE: 08/02/99 (MM/DD/YY)
SIML FROM TIME : 00.00.00 (HH.MM.SS)
SIML TO TIME   : 23.59.59 (HH.MM.SS)
LINENUM      : 55 (20 - 100)
SYSOUT CLASS  : *                   ADDITIONAL DSNAME : 0 (0 - 99)

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
====>
====>
====>
-----
F1= HELP  F2= SPLIT  F3= END    F4= RETURN F5=          F6=          F7=
F8=       F9= SWAP   F10=       F11=         F12=

```

2. Modify the default settings on the CICS Automated Performance Comparison Worksheet screen by typing over the entries.
 3. Fill in the job statement information at the bottom of the screen and press **Enter** to generate the report. In the list that follows, the screen names are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRAPC).
- **FUNCTION:** AUTOWORK is the function parameter.

- **DSNAME:** Enter the data set name of the first Report File to use. If multiple Report Files are used (the ADDITIONAL DSNAMEs setting is greater than zero), this is the first file used. The same DSNAME prefix is assumed for the additional Report Files.

Default: Current DSNAME on the Dialog Management screen

Format: 1- to 44-character data set name

Restrictions: If multiple Report Files are used, DSNAME cannot exceed 42 characters and the last qualifier cannot exceed 6 characters.

- **MODEL APPLID (APPLID):** Enter the VTAM APPLID of the CICS region with the most significant activity in the system, or whose activity and time of peak workload best represent the other CICS regions included on the Report Files. Leave this field blank to use the first (or only) CICS region included on the Report File.

Note: The data records of the MODEL APPLID are used to determine the pair of comparable peak-workload Production/Simulation periods with the largest CPU savings identified by Energizer for CICS. This pair of periods is then used to produce a CICS Performance Comparison Worksheet for each of the APPLIDs in the Report Files.

Default: Blank

Format: One- to eight-character VTAM Application ID

Restrictions: None

- **FROM DATE (FROMDATE):** Enter the starting date of activity to analyze.

Default: Current date

Format: mm/dd/yy

Restrictions: None

- **FROM TIME (FROMTIME):** Enter the starting time of activity to analyze.

Default: 00.00.00

Format: hh.mm.ss

Restrictions: If FROM DATE is equal to TO DATE, FROM TIME must be less than TO TIME.

- **TO DATE (TODATE):** Enter the ending date of activity to analyze.

Default: Current date

Format: mm/dd/yy

Restrictions: None

- **TO TIME (TOTIME):** Enter the ending time of activity to analyze.

Default: 23.59.59

Format: hh.mm.ss

Restrictions: If FROM DATE is equal to TO DATE, TO TIME must be greater than FROM TIME.

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

Default: 55

Range of Values: 20 - 100

Restrictions: None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

Default: *

Range of Values: Output class codes valid for your installation

Restrictions: None

- **ADDITIONAL DSNAMES:** Enter the number of Report Files to use in addition to the Report File specified by DSNAMES. If zero is specified, no additional Report Files will be used. Otherwise, processing will start with the file specified by DSNAMES.

Note: Each Report File is processed independently of the other Report Files. A separate CICS Performance Comparison Worksheet is produced for each APPLID found on the Report Files based on the same Production/Simulation periods.

Default: 0

Range of Values: 0 - 99

Restrictions: If a nonzero value *nn* is specified, Energizer for CICS will assume the existence of *nn* Report Files with the data set name prefix specified by DSNNAME and with a numerical suffix ranging from 01 to *nn* appended to the last qualifier of DSNNAME. For example, if DSNNAME is ENERGIZE.CICS.REPORT and MULTIPLE DSNAMES is 2, Energizer for CICS will assume the existence of two additional Report Files with the data set names of ENERGIZE.CICS.REPORT01 and ENERGIZE.CICS.REPORT02.

To generate the CICS Automated Performance Comparison Worksheet using a batch job:

1. Copy the member ECSJRAPC from the BBSAMP sample library.
2. Modify the JCL according to your installation standards.
3. Enter the data set name of the BMC Software load library in the DSN parameter of the STEPLIB DD statement.
4. Enter the data set name of the first Energizer for CICS Report File in the DSN parameter of the REPORT DD statement.

Specify additional Energizer for CICS Report Files by inserting REPORT*n* DD statements, where *n* must start with 1 and be incremented continuously. Up to 99 additional Report Files (REPORT1 to REPORT99) can be used.

Note: Each Report File is processed independently of the other Report Files. A separate CICS Performance Comparison Worksheet is produced for each APPLID found on the Report Files, based on the same production/simulation periods.

5. Enter the selection criteria for the CICS Automated Performance Comparison Worksheet by typing over the parameters that follow the SYSIN statement.

Note: If no APPLID parameter is specified, Energizer for CICS uses the first APPLID on the input Report Files as the MODEL APPLID.

6. Submit the job.

**Figure 5-13 Sample CICS Automated Performance Comparison Worksheet
JCL (Member ECSJRAPC)**

```
***** Top of Data *****
/*
/* Member: ECSJRAPC
/*
/* Automated CICS Performance Comparison Worksheet
/*
/* Edit the date and time ranges on the SYSIN statements.
/*
/* Edit the following variables:
/* -----
/* energize.cics.BBLINK
/*      The DSN of the BMC Software load library.
/*
/* your.energize.cics.REPORT
/*      The input DSN of the report file.
/*
/* cics-applid
/*      The CICS Application Id to be selected.
/* -----*
//APRFRPT EXEC PGM=PL00BTCH,REGION=5M
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SNAPDD DD SYSOUT=*
//SYSIN DD *
      AUTOWORK APPLID=cics-applid,LINENUM=55,
      FROMDATE=mm/dd/yy,FROMTIME=hh.mm.ss,
      TODATE=mm/dd/yy,TOTIME=hh.mm.ss
//
***** Bottom of Data *****
```

Figure 5-14 Sample List of Comparable Peak Workload Periods

BMC Software				ENERGIZER/CICSDATE:05/12/99				
REPORT P100BTCH REL 4.100				TIME:12:35:03				
APPLID : CICSPROD				BATCH REPORTING FACILITY PROGRAM				
SAMPLE LIST OF COMPARABLE PEAK WORKLOAD PERIODS FOR CICSROD PAGE: 1								
PRODDATE	PRODTDATE	SIMLDATE	SIMLTDTE	FROMTIME	TOTIME	IMPROV.	TRAN/INT (PROD)	TRAN/INT (SIML)
02/18/99	02/18/99	02/08/99	02/08/99	14.30.00	16.30.00	5.6	73374	76525
02/18/99	02/18/99	02/08/99	02/08/99	14.30.00	17.00.00	5.2	72706	75928
02/18/99	02/18/99	02/08/99	02/08/99	15.00.00	17.00.00	5.0	71507	75646
02/18/99	02/18/99	02/09/99	02/09/99	09.30.00	11.30.00	5.9	78959	88113
02/18/99	02/18/99	02/09/99	02/09/99	09.30.00	12.30.00	6.5	79557	85387
02/18/99	02/18/99	02/09/99	02/09/99	09.30.00	12.00.00	6.3	80356	87861
02/18/99	02/18/99	02/09/99	02/09/99	10.00.00	12.00.00	7.1	80869	87691
02/18/99	02/18/99	02/09/99	02/09/99	10.00.00	12.30.00	7.2	79808	84757
02/18/99	02/18/99	02/09/99	02/09/99	10.30.00	12.30.00	7.2	80539	83846
02/18/99	02/18/99	02/10/99	02/10/99	09.30.00	11.30.00	9.2	78959	82243
02/18/99	02/18/99	02/10/99	02/10/99	09.30.00	12.00.00	9.1	80356	82565
02/18/99	02/18/99	02/10/99	02/10/99	10.00.00	12.00.00	10.2	80869	81719
02/18/99	02/18/99	02/10/99	02/10/99	14.30.00	16.30.00	8.7	73374	73601
02/18/99	02/18/99	02/10/99	02/10/99	14.30.00	17.00.00	9.7	72706	73407
02/18/99	02/18/99	02/10/99	02/10/99	15.00.00	17.00.00	9.9	71507	72882
02/18/99	02/18/99	02/11/99	02/11/99	14.30.00	16.30.00	11.9	73374	73563
02/18/99	02/18/99	02/11/99	02/11/99	14.30.00	17.00.00	10.9	72706	73084
02/18/99	02/18/99	02/11/99	02/11/99	15.00.00	17.00.00	10.3	71507	72982
02/18/99	02/18/99	02/12/99	02/12/99	09.30.00	11.30.00	9.6	78959	74747
02/18/99	02/18/99	02/12/99	02/12/99	09.30.00	12.00.00	9.9	80356	75197
02/18/99	02/18/99	02/12/99	02/12/99	10.00.00	12.00.00	10.9	80869	75063
02/18/99	02/18/99	02/12/99	02/12/99	14.30.00	16.30.00	10.8	73374	69866
02/19/99	02/19/99	02/09/99	02/09/99	09.30.00	12.00.00	5.5	77204	87861
02/19/99	02/19/99	02/09/99	02/09/99	10.00.00	12.00.00	6.5	77687	87691
02/19/99	02/19/99	02/10/99	02/10/99	09.30.00	11.30.00	8.1	77088	82243
02/19/99	02/19/99	02/10/99	02/10/99	09.30.00	12.00.00	8.3	77204	82565
02/19/99	02/19/99	02/10/99	02/10/99	10.00.00	12.00.00	9.5	77687	81719
02/19/99	02/19/99	02/12/99	02/12/99	09.30.00	11.30.00	8.6	77088	74747
02/19/99	02/19/99	02/12/99	02/12/99	09.30.00	12.00.00	9.1	77204	75197
02/19/99	02/19/99	02/12/99	02/12/99	10.00.00	12.00.00	10.2	77687	75063

PE1175 : THE BEST FOUND PROD/SIML PAIR SENT FOR WORKSHEET EXECUTION

CICS Performance Availability Statistics Report

The CICS Performance Availability Statistics Report provides hardcopy information about user-specified long term performance availability of the CICS system during execution of Energizer for CICS. It extracts data from the operational and statistical records in the Energizer for CICS Report File that were accumulated during the activation of the Energizer for CICS functions in both Production and Simulation modes.

Use this report to obtain a summary of the Energizer for CICS activities to improve the CICS system availability.

The CICS Performance Availability Statistics Report can be generated from either the CICS Performance Availability Statistics screen (Figure 5-15 on page 5-40) or directly using a batch job. Sample JCL (Figure 5-16 on page 5-43) for the batch job is contained in member ECSJRCPA in the BBSAMP sample library. Specify the starting and ending dates and times of Energizer for CICS activity that is to be summarized.

The CICS Performance Availability Statistics Report provides the following performance-availability statistics:

Long-Term Availability

- **NUMBER OF SOS CONDITIONS:** The total number of Short-On-Storage (SOS) conditions reported during the period.
- **NUMBER OF MXT CONDITIONS:** The total number of MAXTASKS conditions reported during the period.

Maxtasks Management

- **MAXIMUM MXT VALUE:** The maximum value of CICS MXT found in the selected action records for the period.
- **MINIMUM MXT VALUE:** The minimum value of CICS MXT found in the selected action records for the period.
- **MIN TIMES MXT CONDITION AVOIDED:** The total number of times the CICS MXT value was changed by the function during the period.

Storage Management

- **MAXIMUM DSALIMIT VALUE:** The maximum value of CICS DSALIMIT found in the selected records for the period.
- **MINIMUM DSALIMIT VALUE:** The minimum value of CICS DSALIMIT found in the selected records for the period.
- **MAXIMUM EDSALIMIT VALUE:** The maximum value of CICS EDSALIMIT found in the selected records for the period.
- **MINIMUM EDSALIMIT VALUE:** The minimum value of CICS EDSALIMIT found in the selected records for the period.

Task Time-Out Management

NUMBER OF TASKS PURGED: The total number of tasks that were canceled by the function during the period because their maximum allowed duration was exceeded.

Transaction Class Management

- **NUMBER OF TIMES MAXACTIVE INCREASED:** The total number of times the function has increased the MAXACTIVE limit of a transaction class during the period.
- **NUMBER OF TIMES MAXACTIVE DECREASED:** The total number of times the function has decreased the MAXACTIVE limit of a transaction class during the period.
- **NUMBER OF TIMES PURGETHRESH INCREASED:** The total number of times the function has increased the PURGETHRESH limit of a transaction class during the period.
- **NUMBER OF TIMES PURGETHRESH DECREASED:** The total number of times the function has decreased the PURGETHRESH limit of a transaction class during the period.
- **NUMBER OF TRANSACTION CLASSES HANDLED:** The total number of transaction classes whose MAXACTIVE and/or PURGETHRESH limits were changed by the function during the period.

Temporary Storage/Transient Data Queue Management

- **NUMBER OF STRINGS/BUFFERS ADDED:** The total number of temporary storage and transient data strings and buffers added by the functions during the period.
- **NUMBER OF TASKS ABENDED:** The total number of tasks that were canceled during the period by the functions because the maximum number of tasks allowed to wait for temporary storage/transient data resources was exceeded.

VSAM Queue Management

- **NUMBER OF VSAM FILE STRINGS ADDED:** The total number of VSAM file strings added by the function during the period.
- **NUMBER OF TASKS ABENDED:** The total number of tasks which were terminated by the function during the period because the maximum number permitted to wait for file strings was exceeded.

MRO/ISC Queue Management

NUMBER OF MRO QUEUE ABENDS: The total number of tasks that were terminated by the function during the period because the maximum number permitted to wait for sessions to remote CICS systems was exceeded.

CICS Performance Availability Statistics Screen

To access the CICS Performance Availability Statistics screen, select Option 4, from the Batch Reporting Facility screen.

Figure 5-15 CICS Performance Availability Statistics Screen

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL    4.100          BATCH REPORTING FACILITY    TIME  17:12
                                CICS PERFORMANCE AVAILABILITY STATISTICS      I24
OPTION  ==>

FUNCTION      : AVALSTAT
DSNAME       : energize.cics report file
APPLID       : (BLANK FOR ALL APPLID'S)
FROM DATE    : 08/02/99 (MM/DD/YY)
FROM TIME    : 00.00.00 (HH.MM.SS)
TO DATE      : 08/02/99 (MM/DD/YY)
TO TIME      : 23.59.59 (HH.MM.SS)
LINENUM      : 55      (20 - 100)
SYSOUT CLASS : *
ADDITIONAL DSNAMES : 0   (0 - 99)

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
==>
==>
==>
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=

```

Modify the default settings on the CICS Performance Availability Statistics screen by typing over the entries.

Fill in the job statement information at the bottom of the screen and press **Enter** to generate the report. In the list that follows, the entry names on the screen are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRCPA).

- **FUNCTION:** AVALSTAT is the function parameter.
- **DSNAME:** Enter the data set name of the Report File to use. If multiple Report Files are used (the ADDITIONAL DSNAMES setting is greater than zero), this is the first file used. The same DSNAME prefix will be assumed for the additional Report Files.

Default: Current DSNAME on the Dialog Management screen

Format: 1- to 44-character data set name

Restrictions: If multiple Report Files are used, DSNAME cannot exceed 42 characters and the last qualifier cannot exceed 6 characters.

- **APPLID (APPLID):** Enter the VTAM APPLID for the CICS region that you want be reported. Leave this field blank to report on all the CICS regions included on the Report File.

Default: Blank

Format: One- to eight-character VTAM application ID

Restrictions: None

- **FROM DATE (FROMDATE):** Enter the starting date of activity to report.

Default: Current date

Format: mm/dd/yy

Restrictions: None

- **FROM TIME (FROMTIME):** Enter the starting time of activity to report.

Default: 00.00.00

Format: hh.mm.ss

Restrictions: If FROM DATE is equal to TO DATE, FROM TIME must be less than TO TIME.

- **TO DATE (TODATE):** Enter the ending date of activity to report.

Default: Current date

Format: mm/dd/yy

Restrictions: None

- **TO TIME (TOTIME):** Enter the ending time of activity to report.

Default: 23.59.59

Format: hh.mm.ss

Restrictions: If FROM DATE is equal to TO DATE, TO TIME must be greater than FROM TIME.

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

Default: 55

Range of Values: 20 - 100

Restrictions: None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

Default: *

Range of Values: Output class codes valid for your installation

Restrictions: None

- **ADDITIONAL DSNAMES:** Enter the number of Report Files to use in addition to the Report File specified by DSNNAME. If zero is specified, no additional Report Files will be used. Otherwise, processing will start with the file specified by DSNNAME.

Note: Each Report File will be processed according to the input parameters, independently of the other Report Files. A separate report (or set of reports) will be produced for each Report File.

Default: 0

Range of Values: 0 - 99

Restrictions: If a nonzero value *nn* is specified, Energizer for CICS will assume the existence of *nn* Report Files with the data set name prefix specified by DSNNAME and with a numerical suffix ranging from 01 to *nn* appended to the last qualifier of DSNNAME. For example, if DSNNAME is ENERGIZE.CICS.REPORT and ADDITIONAL DSNAMES is 2, Energizer for CICS will assume the existence of two additional Report Files with the DSNAMES of ENERGIZE.CICS.REPORT01 and ENERGIZE.CICS.REPORT02.

To print the CICS Performance Availability Statistics Report using a batch job:

1. Copy the member ECSJRCPA from the BBSAMP sample library.
2. Modify the JCL according to your installation standards.
3. Type the data set name of the BMC Software load library in the DSN parameter of the STEPLIB DD statement.
4. Enter the data set name of the Energizer for CICS Report File in the DSN parameter of the REPORT DD statement.

Specify additional Energizer for CICS Report Files by inserting REPORT*n* DD statements, where *n* must start with 1 and be incremented continuously. Up to 99 additional Report Files (REPORT1 to REPORT99) can be used.

Note: Each Report File will be processed according to the input parameters independently of the other Report Files. A separate report (or set of reports) will be produced for each Report File.

5. Enter the selection criteria for the Performance Availability report by typing over the parameters that follow the SYSIN statement.
6. Submit the job.

Figure 5-16 Sample CICS Performance Availability Statistics JCL (Member ECSJRCPA)

```
***** Top of Data *****
/*
/* Member: ECSJRCPA
/*
/* CICS Performance Availability Statistics Report
/*
/* Edit the date and time ranges on the SYSIN statements.
/*
/* Edit the following variables:
/* -----
/* energize.cics.BBLINK
/*      The DSN of the BMC Software load library.
/*
/* your.energize.cics.REPORT
/*      The input DSN of the report file.
/*
/* cics-applid
/*      The CICS Application Id to be selected.
/*
/*-----*
//AVALRPT EXEC PGM=P100BTCH,REGION=1M
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SNAPDD DD SYSOUT=*
//SYSIN DD *
        AVALSTAT APPLID=cics-applid,LINENUM=55,
        FROMDATE=mm/dd/yy,FROMTIME=hh.mm.ss,
        TODATE=mm/dd/yy,TOTIME=hh.mm.ss
//
***** Bottom of Data *****
```

BMC Software, Inc., Confidential and Proprietary Information

```

PE580 : NUMBER OF RECORDS READ          42
PE581 : NUMBER OF SLOTS SELECTED        253
PE582 : NUMBER OF APPLIDS SELECTED       1
PE562 : FUNCTION SUCCESSFULLY COMPLETED

```

SMF Analysis Report

The SMF Analysis Report provides statistical information about the performance of a CICS region during peak workload periods with and without Energizer for CICS. It extracts data from the installation's System Management Facility (SMF).

Use this report for evaluation of the improvement achieved in a CICS region as a result of the Energizer for CICS activities in the region.

The SMF Analysis Report is based mainly on the interval statistics records, (i.e., SMF records of type 30, subtype 2). BMC Software recommends that you use an interval of 10 minutes in order to get accurate results and to get a common base for comparison with the reports, which are based on data gathered by Energizer for CICS every 10 minutes.

The SMF Analysis Report can optionally use SMF records of type 110, subtype 1 that include the number of transactions processed by CICS. If your CICS is not set up for writing these records, you can specify parameters to manually supply the number of transactions to the SMF Analysis program.

The SMF Analysis Report can be generated from either the SMF Analysis Report screen (Figure 5-18 on page 5-47), or directly using a batch job. See Figure 5-20 on page 5-54. The data is first extracted from the appropriate SMF data set for the day when the Energizer for CICS functions were executing in Production Mode (PROD), and then again for the comparison day when the Energizer for CICS functions were executing in Simulation Mode (SIML). The data is merged for the report. Specify the starting and ending dates and times of CICS activity that is to be compared. The time interval for the report is the same for both days.

The SMF Analysis Report provides the following activity statistics:

CICS CPU Utilization

- **AVERAGE CICS CPU OF RECORD TYPE 30:** The average CICS CPU utilization (percents) per SMF interval. This calculation divides the total CICS CPU time by the total length of the SMF intervals in the peak period.
- **MAXIMUM CICS CPU, PEAK RECORD TYPE 30:** The maximum CICS CPU utilization in the SMF intervals. This calculation retrieves the maximum value from the values calculated for each SMF interval by dividing the total CICS CPU time for the SMF intervals by the SMF interval length.

CICS CPU (in 1/100 Seconds)

- **AVERAGE STEP CPU TIME - TCB:** The average step CPU time (TCB) per SMF interval. This calculation divides the total step CPU time (TCB) by the number of SMF intervals.
- **AVERAGE STEP CPU TIME - SRB:** The average step CPU time (SRB) per SMF interval. This calculation divides the total step CPU time (SRB) by the number of SMF intervals.
- **AVERAGE CPU TIME USED FOR I/O:** The average CPU time used for I/O per SMF interval. This calculation divides the total CPU time used for I/O by the number of SMF intervals.
- **AVERAGE CPU TIME USED BY THE RCT:** The average CPU time used by the Region Control Task (RCT) per SMF interval. This calculation divides the total CPU time used by the RCT by the number of SMF intervals.
- **AVERAGE DATA TRANSFER CPU TIME:** The average data transfer CPU time per SMF interval. This calculation divides the total data transfer CPU time by the number of SMF intervals.
- **AVERAGE ADDITIONAL CPU:** The average additional CPU time per SMF interval. This calculation divides the total additional CPU time by the number of SMF intervals.
- **AVERAGE CPU PER INTERVAL:** The average CPU time per SMF interval. This calculation divides the total CPU time by the number of SMF intervals.
- **TOTAL TRANSACTIONS PROCESSED:** The total number of CICS transactions processed during the period. If SMF records of type 110, subtype 1 are available, this number is derived from the SMF records. Otherwise, this is the number supplied in the SIMLTRAN and PRODTRAN input parameters.
- **TOTAL TRANSACTIONS NORMALIZED:** The total number of CICS transactions processed during the period, normalized to the smaller number.
- **TOTAL TRANSACTIONS PER INTERVAL:** The average number of transactions per SMF interval. This calculation divides the total number of transactions processed during the period by the number of SMF intervals.

- **TRANSACTIONS PER CICS CPU MINUTE:** The number of transactions processed per CICS CPU minute for the period. This calculation divides the total number of transactions per interval by the average number of CICS CPU minutes per interval.
 - **AVERAGE CPU PER TRANSACTION:** The average CICS CPU utilization per processed transaction for the period. This calculation divides the sum of the average CICS CPU utilizations for the period by the total number of transactions for the period.
1. To access the SMF Analysis Report screen, shown in Figure 5-18, select Option 6, SMF Analysis Report from the Batch Reporting Facility screen.

Figure 5-18 SMF Analysis Report Screen

```

USERID  L99087                ENERGIZER/CICS          DATE  99/08/02
REL    4.100                  BATCH REPORTING FACILITY  TIME  16:56
                                CICS AUTOMATED PERFORMANCE COMPARISON WORKSHEET 123
OPTION  ==>

FUNCTION      : AUTOWORK
DSNAME        : energize.cics report file
MODEL APPLID  : (BLANK FOR 1ST APPLID ON FILE)
FROM DATE     : 08/02/99 (MM/DD/YY)
FROM TIME     : 00.00.00 (HH.MM.SS)
TO DATE       : 08/02/99 (MM/DD/YY)
TO TIME       : 23.59.59 (HH.MM.SS)
LINENUM       : 55 (20 - 100)
SYSOUT CLASS  : *
ADDITIONAL DSNAME : 0 (0 - 99)

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
==>
==>
==>
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=

```

2. Modify the default settings on the SMF Analysis Report screen by typing over the entries.
 3. Fill in the job statement information at the bottom of the screen and press **Enter** to generate the report. In the following list, the screen names are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRSCA).
- **FUNCTION:** SMF is the function parameter.
 - **SMF DATA SET:** Enter the data set name of the SMF file containing the data for the SIML and PROD days. The default file name is SYS1.MANx, where x is the file identifier, or the file to which that data was dumped.

Default: SYS1.MAN1

Format: 1- to 44-character data set name

Restrictions: None

- **SYST IDENTIFIER (SID):** Enter your SMFID. See your MVS system programmer for assistance.

Default: Four-digit processor model number, e.g. 3090

Format: One- to four-character system identifier

Restrictions: None

- **SIML/PROD START DATE (DATE):** Enter the starting date of activity to be extracted from the SMF file for the SIML/PROD reporting period. To extract all dates from the file, leave this field blank.

Default: All dates on the SMF file

Format: mm/dd/yy

Restrictions: None

- **SIML/PROD END DATE (DATE):** Enter the ending date of activity to be extracted from the SMF file for the SIML/PROD reporting period. To extract all dates from the file, leave this field blank.

Default: All dates on the SMF file

Format: mm/dd/yy

Restrictions: None

- **SIML/PROD START TIME (START):** Enter the starting time of activity to be extracted from the SMF file for the SIML/PROD reporting period.

Default: 0800

Format: hhmm

Restrictions: If START DATE is equal to END DATE, START TIME must be less than END TIME.

Note: If you are using SMF records of type 110 to get the number of processed CICS transactions, and if the SMF interval length for recording SMF records of type 30, subtype 2 is larger than 10 minutes, BMC Software recommends that you specify a time that is one hour earlier than the value specified in FROM TIME.

- **SIML/PROD END TIME (END):** Enter the ending time of activity to be extracted from the SMF file for the SIML/PROD reporting period.

Default: 1800

Format: hhmm

Restrictions: If START DATE is equal to END DATE, END TIME must be greater than START TIME.

Note: If you are using SMF records of type 110 to get the number of processed CICS transactions, and if the SMF interval length for recording SMF records of type 30, subtype 2 is larger than 10 minutes, BMC Software recommends that you specify a time which is one hour later than the value specified in TO TIME.

- **SIML DATE (SIMLDATE):** Enter the date when Energizer for CICS was not activated in Production Mode.

Default: PROD DATE - 1

Format: mm/dd/yy

Restrictions: None

- **PROD DATE (PRODDATE):** Enter the date when Energizer for CICS was activated in Production Mode.

Default: Current date

Format: mm/dd/yy

Restrictions: None

- **FROM TIME (FROMTIME):** Enter the starting time of the comparison period for both the SIML and PROD days.

Default: 08.00.00

Format: hh.mm.ss

Restrictions: FROM TIME must be less than TO TIME.

- **TO TIME (TOTIME):** Enter the ending time of the comparison period for both the SIML and PROD days.

Default: 18.00.00

Format: hh.mm.ss

Restrictions: TO TIME must be greater than FROM TIME

- **CICS Applid (APPLID):** Enter the VTAM application ID for the CICS region.

Default: Blank

Range of Values: One- to eight-character VTAM application ID

Restrictions: None

- **CICS Job Name (JOBNAME):** Enter the CICS job name.

Default: Blank

Range of Values: One- to eight-character CICS job name

Restrictions: None

- **SIML TRAN Num (SIMLTRAN):** Enter the number of CICS transactions that were processed during the period of time specified by the FROM TIME and TO TIME parameters when Energizer for CICS was not activated in Production Mode. This parameter is optional and must be specified in case the SMF records of type 110, subtype 1 are not available.

Default: 0

Range of Values: 0 - 99999999

Restrictions: This value must be specified if SMF records of type 110, subtype 1 are not available. If specified, the SMF records of type 110 are ignored.

- **PROD TRAN Num (PRODTRAN):** Enter the number of CICS transactions processed during the period of time specified by the FROM TIME and TO TIME parameters when Energizer for CICS was activated in Production Mode. This parameter is optional and must be specified in case when the SMF records of type 110, subtype 1 are not available.

Default: 0

Range of Values: 0 - 99999999

Restrictions: This value must be specified if no SMF records of type 110, subtype 1 are available. If specified, the SMF records of type 110 are ignored.

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

Default: 55

Range of Values: 20 - 100

Restrictions: None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

Default: *

Range of Values: Output class codes valid for your installation

Restrictions: None

To print the SMF Analysis Report using a batch job:

Step 1 Copy member ECSJRCSA from the BBSAMP sample library.

Step 2 Modify the JCL according to your installation standards.

Step SMFPROD:

- 2.A** Ensure that IN statement specifies either the SMF file containing the data for the Production (PROD) day, SYS1.MANx, where x is the file identifier, or the file to which the data was dumped.
- 2.B** Specify the range of dates to be extracted from the SMF file for the PROD day in the DATE parameter. Enter the dates in Julian format (YYYYDD). For all dates on the file, delete this parameter.
- 2.C** Specify the range of times for the data in the START and END parameters. The format is (HHMM). To select all dates in the file, delete this parameter.

Note: If you use SMF records of type 110 to get the number of processed CICS transactions, and if the SMF interval length for recording SMF records of type 30, subtype 2 is larger than 10 minutes, BMC Software recommends that you specify starting and ending times that are one hour earlier than FROMTIME and one hour later than TOTIME, respectively.

- 2.D** Specify the system identifier on the SID parameter. See your MVS system programmer for assistance.

Step 3 Step SMFSIML:

Repeat steps 2.A through 2.D above for the Simulation (SIML) day, the day without Energizer for CICS functions executing in PROD mode.

Step 4 Step SMFEXRCT:

- 4.A** Type the data set name of the BMC Software load library in the DSN parameter of the STEPLIB DD statement.
- 4.B** Change the parameters that follow the SYSIN statement to reflect your comparison requirements.

Step 5 Submit the job.

Chapter 5 Batch Reporting Facility 5-53

```

BMC Software                               ENERGIZER/CICS          DATE : 08/02/99
REPORT P100SMFN REL 4.100                 TIME : 10:43:09
S M F   A N A L Y S I S   P R O G R A M

                                           PAGE : 1

PERFORMANCE COMPARISON WORKSHEET
WITH/WITHOUT ENERGIZER
  CICS JOBNAME: CICST                   CICS APPLID: CICST
  PEAK PERIOD INFORMATION PROD DAYSIML DAY
WITH E/CW/O E/C
DATE07/27/9907/26/99
DAY OF WEEKTEUSDAYMONDAY
START TIME08.02.5908.01.00
END TIME21.56.4222.50.00
SMF INTERVAL00.10.0000.10.00
NUMBER OF SMF 30 RECORDS READ.....76.....78
NUMBER OF SMF 110 RECORDS READ.....0.....0

NUMBER OF REPORTING DAYS.....1.....1

PEAK PERIOD CICS PERFORMANCE ANALYSIS

CICS CPU UTILIZATION

AVERAGE CICS CPU OF RECORD TYPE 301.321.36
MAXIMUM CICS CPU, PEAK RECORD TYPE 307.007.00

CICS CPU (IN 1/100 SECONDS)
AVERAGE STEP CPU TIME - TCB                837.22  890.00  SMF30CPT
AVERAGE STEP CPU TIME - SRB                41.17  51.00  SMF30CPS
AVERAGE CPU TIME USED FOR I/O              6.67   7.00  SMF30IIP
AVERAGE CPU TIME USED BY THE RCT           0.00   0.00  SMF30RCT
AVERAGE DATA TRANSFER CPU TIME            0.00   0.00  SMF30HPT
AVERAGE ADDITIONAL CPU                    0.00   0.00  SMF30ASR
AVERAGE CPU PER INTERVAL                  885.06 948.00

TOTAL TRANSACTIONS PROCESSED                ....199000    ....185000
TOTAL TRANSACTIONS NORMALIZED                ....199000    ....185000
TOTAL TRANSACTIONS PER SMF INTERVAL          .....2618    .....2434
TOTAL TRANSACTIONS PER 10 MINUTES            .....2618    .....2434
                                           IMPROVEMENT
TRANSACTIONS PER CICS CPU MINUTE              .....197  10.6% ...178
AVERAGE CPU PER TRANSACTION                 0.0005072    0.0005612

NOTE: AVERAGE ADDITIONAL CPU (SMF30ASR) IS NOT USED IN THE COMPUTATION OF TOTAL
CPU, BECAUSE THIS VALUE IS INCLUDED IN THE AVERAGE STEP CPU TIME - TCB
(SMF30CPT).

PE1133: NUMBER OF RECORDS READ13912

PE1134: NUMBER OF RECORD TYPE 30 READ:13910

PE1134: NUMBER OF RECORD TYPE 110 READ:      0

PE1584: FUNCTION SUCCESSFULLY COMPLETED

```

Figure 5-20 BBSAMP Member ECSJRSCA

```

***** Top of Data *****
/*
/* Member: ECSJRSCA
/*
/* Produce the SMF Analysis Report
/*
/* Edit the date and time ranges on the SYSIN statements.
/*
/* Edit the following variables:
/* -----
/* energize.cics.BBLINK
/*      The DSN of the BMC Software load library.
/*
/* your-smfid
/*      The SMF Id for the selected OS/390 system.
/*
/* cics-job-name
/*      The CICS Job Name to be selected.
/*
/* cics-applid
/*      The CICS Application Id to be selected.
/*
/* -----*
/*
/* Extract PROD Data
/*
//SMFPROD EXEC PGM=IFASMFDP
//SYSPRINT DD SYSOUT=*
/* Specify file with SMF data for PROD day or file with SMF dump.
//IN      DD DISP=SHR,DSN=SYS1.MAN1
/*IN      DD DISP=SHR,DSN=SYS1.MAN2
/*IN      DD DISP=SHR,DSN=SYS1.MAN3
/*
//OUT      DD DISP=(,PASS),
//          DSN=&&PRODDUMP,
//          DCB=BLKSIZE=4096,
//          UNIT=SYSDA,SPACE=(CYL,(5,5))
//SYSIN    DD *
//          DATE(yyyyddd,yyyyddd)
//          START(hhmm)
//          END(hhmm)
//          INDD(IN,OPTIONS(DUMP))
//          OUTDD(OUT,TYPE(30(2),110(1)))
//          SID(your-smfid)
/*
/* Extract SIML Data
/*
//SMFSIML EXEC PGM=IFASMFDP
//SYSPRINT DD SYSOUT=*
/* Specify file with SMF data for SIML day or file with SMF dump.
//IN      DD DISP=SHR,DSN=SYS1.MAN1
/*IN      DD DISP=SHR,DSN=SYS1.MAN2
/*IN      DD DISP=SHR,DSN=SYS1.MAN3
/*
//OUT      DD DISP=(,PASS),
//          DSN=&&SIMLDUMP,
//          DCB=BLKSIZE=4096,
//          UNIT=SYSDA,SPACE=(CYL,(5,5))
/*
//SYSIN    DD *
//          DATE(yyyyddd,yyyyddd)
//          START(hhmm)
//          END(hhmm)
//          INDD(IN,OPTIONS(DUMP))
//          OUTDD(OUT,TYPE(30(2),110(1)))
//          SID(your-smfid)
/*
/* Merge PROD and SIML Data
/*
//SMFMERGE EXEC PGM=SORT,REGION=2M,COND=(5,LT)
//SYSPRINT DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(5,5))
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(5,5))
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(5,5))
//SORTIN   DD DISP=(OLD,PASS),DSN=*.SMFSIML.OUT
//          DD DISP=(OLD,PASS),DSN=*.SMFPROD.OUT

```

```

//SORTOUT DD DISP=(,PASS),
//          DSN=&&SMFMERGE,
//          DCB=(*.SMFMERGE.SORTIN),
//          UNIT=SYSDA,SPACE=(CYL,(5,10))
//SYSIN DD *
SORT FIELDS=(6,1,A,11,4,A,7,4,A),FORMAT=BI,SIZE=E10000
/*
/* Print the Report
/*
//SMFEXRCT EXEC PGM=PL00SMFN,REGION=2M,COND=(5,LT)
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//SYSPRINT DD SYSOUT=*
//SMFDUMP DD DISP=(OLD,PASS),DSN=*.SMFMERGE.SORTOUT
//REPORT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN DD *
LINENUM=55
SIMLDATE=mm/dd/yy
PRODDATE=mm/dd/yy
FROMTIME=hh.mm.ss
TOTIME=hh.mm.ss
JOBNAME=cics-job-name
APPLID=cics-applid
PRODTRAN=number of transactions in production mode
SIMLTRAN=number of transactions in simulation mode
/*
/* Delete the Files
/*
//SMFDEL EXEC PGM=IEFBR14,COND=(5,LT)
//D1 DD DISP=(OLD,DELETE),DSN=*.SMFPROD.OUT
//D2 DD DISP=(OLD,DELETE),DSN=*.SMFSIML.OUT
//D3 DD DISP=(OLD,DELETE),DSN=*.SMFMERGE.SORTOUT
//
***** Bottom of Data *****

```

Chapter 6 Guidelines

Energizer for CICS functions provide reductions in resource usage and increased availability and throughput. The guidelines presented below describe what to expect from the Energizer for CICS functions within a particular CICS workload and environment, explain how to customize Energizer for CICS according to what is most appropriate for your installation, and provide suggestions for improving CICS response times based on your version of CICS. Note that Energizer for CICS works best when it is active in at least three CICS systems with moderate or high CPU utilization.

Additionally, these guidelines should prove helpful in analyzing Energizer for CICS benefits and savings. It is important to remember that the Energizer for CICS functions will provide significantly better results when they are started at nonpeak or low-utilization periods. It is also important to give Energizer for CICS one full interval to collect statistics and allow all functions to become fully activated.

Note: In order to realize the maximum CPU savings by Energizer for CICS, BMC Software recommends that users of non-IBM data base management systems run the CICS regions at a higher MVS dispatching priority than the DBMS regions.

How Energizer for CICS Functions Work

Dispatch Management Function

The Dispatch Management Function will not attempt to manage any CICS system using less than 10% CPU utilization within the interval surrounding an MVS Wait. Note also that Energizer for CICS will not manage MVS Waits during the first interval that it is active.

The CPU savings realized for CICS systems using between 20% and 65% utilization can be easily measured. As the resources used by a single CICS region exceed 65%, the number of operating system waits decline and the benefits of managing those waits also begins to decline. This is also the threshold at which the other components of Energizer for CICS start to provide spare CPU resources for peak demands.

MRO Dispatch Management Function

As with the Dispatch Management function, the MRO Dispatch Management Function will provide the greatest benefit to connected CICS systems that are each using between 20% to 65% CPU utilization. The MRO Dispatch Management Function is an extension of the Dispatch Management function. It assists with the management of the CICS dispatch processing within environments that have multiple CICS regions being managed by Energizer for CICS. This function will automatically be activated when the Dispatch Management function is activated. Activating this function will activate the Dispatch Management function. For best results, these Dispatch Management functions should be active in three or more CICS regions.

VSAM Subtask Management Function

The VSAM Subtask Management function saves the overhead of VSAM subtasking when this off-loading process is not necessary. However, as the CPU utilization used by a single CICS exceeds a maximum threshold of 45% to 80%, the Energizer for CICS VSAM Subtask Management function will begin to off load VSAM processing to another CPU in the complex with more resources available. Do not attempt to run the Energizer for CICS VSAM Subtask Management function or the CICS VSAM subtasking option unless your installation has a multi-processor installed.

Trace Management Function

The Energizer for CICS Trace Management function starts to deactivate the least important functions of the CICS Trace Facility as CICS or total System CPU utilization rises to critical levels and system response time begins to deteriorate. It reactivates the functions again when CPU utilization drops below critical levels.

MRO/ISC Queue, VSAM Queue, Temporary Storage Queue, and Transient Data Queue Management Functions

The Energizer for CICS Queue Management functions are primarily meant to improve system availability by avoiding bottlenecks, lockouts, and sympathetic outages caused by unexpected requests for strings, buffers, and MRO/ISC sessions. The benefits of these services are as critical as the savings produced by the other functions. These benefits can not be measured on a continuous basis. Rather, they must be evaluated on an event-by-event basis.

When there was an unexpected peak demand for access to file XYZ, was there an increase in response time and/or a Short-on-Storage Condition because of tasks waiting for strings; or did Energizer for CICS prevent this problem from deteriorating further so as not to affect other transactions and users?

Similarly, when there was an Application Owning Region that abended, did Energizer for CICS prevent any of the connected regions from also abending? Did Energizer for CICS permit users of other regions to continue processing?

Storage, Transaction Class, and Maxtasks Management Functions

The Storage Management, Transaction Class Management, and Maxtasks Management functions affect total throughput by matching the workload to the real and virtual storage and CPU resources available. Again, the benefits of these services are usually not of a continuous nature. Rather, these functions produce very significant effects as CICS approaches MXT, AMXT, or MAXACTIVE for a transaction class, the maximum amount of real or virtual storage, or the maximum CPU available. Energizer for CICS ensures that users will no longer be locked out of CICS because of arbitrary MAXTASKS, AMAXTASKS, and MAXACTIVE values. Likewise, Energizer for CICS will help to avoid short-on-storage conditions and keep the workload flowing continuously through the CICS system.

Program Compression Management Function

The Program Compression Management function enhances the CICS Dynamic Program Storage Compression (DPSC) processing by providing CICS with dynamic targets for CICS DSA utilization rather than the constant free storage target that CICS uses. The Program Compression Management function will increase the number of resident programs and increase the program residency times when DSA is available to accommodate additional programs. When short-on-storage conditions occur, the function will cause CICS to release more not-in-use programs, making extra DSA available for user task needs.

Task Time-Out Management Function

The Energizer for CICS Task Time-Out Management function dynamically purges both active and waiting CICS transactions that have passed their allowable duration either under normal processing conditions or only when CICS is under stress.

Excluded Tasks

The Task Time-out Management function excludes the following transactions from purge processing:

- All transaction IDs that begin with the character 'C'
- Any transaction ID whose first two characters match the first two characters of the Energizer for CICS long-running tuning transaction. The tuning transaction is normally named PET0. It may have a different name when the Energizer for CICS transactions have been renamed to confirm to site naming standards.
- The DB2 transaction DSNC

Before activating the Task Time-out Management function in PROD mode, a task age table exclusion list must be defined containing the transaction IDs for any long running tasks that execute within the CICS region. Some transaction IDs for long running tasks that should be defined in the table are:

- MAINVIEW for CICS transactions JNL2 and BCRT
- Omegamon transaction OMEG

Parameter Settings

The Energizer for CICS functional parameters should be customized according to what is most appropriate for your installation. For most installations, the default parameters need not be changed.

Dispatch Management Function and MRO Dispatch Management Function Settings

The Dispatch Management and MRO Dispatch Management functions are integrated and execute together regardless of whether the CICS regions are using CICS MRO processing. Setting the AUTOSTART or MODE parameters for one function affects the setting of these parameters for the other function. Leave the DISPATCH PARAMETER value and the INTERNAL parameter values unchanged unless instructed by BMC Software Customer Support to alter these parameters.

Program Compression Management Function

The DSA utilization parameters for this function specify how high DSA utilization should be before the Program Compression Management function instructs CICS to compress programs. If the current CICS statistics show a program residency time measured in minutes, the DSA utilization default settings are good for your installation. If the program residency times are low, set the below-the-line DSA parameter at 80% and the above-the-line DSA parameter at 85%. If there are currently storage constraints in a particular DSA, lower the utilization parameter for that DSA to 60%.

Storage Management Function

The Storage Management function has no user parameters. Energizer for CICS dynamically calculates the range of values that may be assigned to the EDSALIMIT parameter of CICS. Energizer for CICS will not decrease EDSALIMIT below its original value. The upper limit of EDSALIMIT is set to the larger of the two values: 100 M or the original EDSALIMIT + 25%. A spare amount of at least 1 M of free MVS storage is left above the line. Allocated storage is released immediately when not needed.

Trace Management Function

The default CPU utilization at which trace functions are disabled is 65% of system CPU. The CPU utilization where trace functions are restored should be set 8% -10% below where they are disabled. You may want to customize the order in which the trace options are disabled via the Trace Options Table screens. The default settings are compatible with leading CICS performance monitors.

VSAM Subtask Management Function

If the system experiences a very large number of CI and CA splits, you may want to lower the CPU utilization parameter for subtasking VSAM PUT operations to 30%.

Response-Time Hints

Dispatch Management and MRO Dispatch Management functions are the two functions that have the most direct impact on system response time when there are no actual problems or peak situations.

For these nonpeak, non problem periods, the difference between the response time with Energizer for CICS activated and without the functions activated should be between plus 0.1 seconds and minus 0.2 seconds. The actual results depend on the particular CICS configuration, including how many MRO regions are running and their associated workloads. Energizer for CICS will always provide significantly better throughput during peak and problem periods.

If you are not realizing comparable response times of your system, check that your parameter settings correspond to those suggested in the Parameter Settings section of this chapter.

Appendix A Sample Member Names

This appendix contains the names of the members in the sample library.

Table A-1 Sample Member Names

Name	Description
ECSCJCLS	Copy book containing the CICS JCL statements
ECSCPLTI	Copy book containing the CICS PLTPI entry
ECSCPLTS	Copy book containing the CICS PLTSD entry
ECSJEGPH	JCL to create an extracted graph file
ECSJGDFN	JCL to define the ENERCICS group in the CICS CSD
ECSJRAPC	JCL to produce the Automated Performance Comparison Worksheet report
ECSJRASI	JCL to produce the Accumulative Statistics / Index report
ECSJRASM	JCL to start the Reporting Address Space
ECSJRCPA	JCL to produce the CICS Performance Availability report
ECSJRPCI	JCL to produce multiple Performance Comparison Worksheet reports for two-hour intervals throughout the day
ECSJRPCS	JCL to produce the Performance Comparison Worksheet report
ECSJRSCA	JCL to produce the SMF CICS Analysis report
ECSJSIRP	JCL to invoke the P100SIRP utility
ECSJVBKP	JCL to create a backup copy of VSAM report file
ECSJVDFN	JCL to define a VSAM report file
ECSJVFTP	JCL to place a VSAM report file on the FTP server
ECSJVMRG	JCL to merge multiple VSAM report files
ECSPISPF	Procedure to invoke the ISPF user interface
ECSPRASM	Procedure to start the Reporting Address Space

Appendix B Customization Checklists

This appendix contains checklists that summarize the steps required to customize the product.

- If you are setting up the product for the first time, review Table B-1.
- If you are migrating from Energizer for CICS release 4.1 or release 4.2, review Table B-2 on page B-2.
- If you are migrating from a release prior to 4.1, review Table B-3 on page B-3.

Note: The main difference between migrating from release 4.1 and migrating from releases prior to 4.1 is the Reporting Address Space. Prior to release 4.1 there was no Reporting Address Space. Each CICS region had a separate report file allocated to it. When migrating to release 4.2 or later from a release earlier than 4.1 you must allocate a new report data set. You have the option of merging the previously existing report data sets into the new data set.

Table B-1 Customizing a New Installation

Status	Element	Description
	ECSJVDFN	Allocate the VSAM Parameter data set and the Report data sets.
	ECSJGDFN	Update the CICS CSD with the group ENERCICS.
	ECSCPLTI	Update the PLTPI with the P100PEPI entry.
	ECSCPLTS	Update the PLTSD with the P100PESD entry.
	ECSCJCLS	Edit the CICS startup JCL for each CICS region. Alter the JCL to reference the Energizer for CICS product data sets.
	N/A	Modify the CICS system initialization parameter. NEWSIT=YES
	ECSPISPF	Customize the CLIST to invoke the TSO/E ISPF User Interface.
	N/A	Define the CICS region parameters using the Parameter Facility within the TSO/E User Interface.
	N/A	Define the Energizer for CICS password using the License Facility within the TSO/E ISPF User Interface.
	ECSPRASM	Customize the Reporting Address Space JCL procedure.
	N/A	Establish APF Authorization for the BMC Software load library. This task might have already been accomplished by using the BMC Software Installation and Customization System.
	ECSJSIRP	Customize the JCL to dynamically install the SVC front-end and to start the Reporting Address Space.
	N/A	Activate the Energizer for CICS functions in each CICS region.

Multiple Reporting Address Spaces for multiple versions of Energizer for CICS may execute concurrently. The migration process consists of the following groups of tasks.

- Setting up the new Reporting Address Space.
- Migrating each CICS region to the new Reporting Address Space.
- Terminate the previous version of the SVC front-end.

Table B-2 Migrating from Release 4.1

Status	Element	Description
Setting up the new Reporting Address Space		
	ECSJVDFN	Allocate the VSAM Parameter data set and the Report data sets.
	ECSPISPF	Customize the CLIST to invoke the TSO/E ISPF User Interface.
	N/A	Define the CICS region parameters using the Parameter Facility within the TSO/E User Interface.

Table B-2 Migrating from Release 4.1

	N/A	Define the Energizer for CICS password using the License Facility within the TSO/E ISPF User Interface.
	ECSPRASM	Customize the Reporting Address Space JCL procedure.
	N/A	Establish APF Authorization for the BMC Software load library. This task might have already been accomplished by using the BMC Software Installation and Customization System.
	ECSJSIRP	Customize the JCL to dynamically install the SVC front-end and to start the Reporting Address Space.
Migrate each CICS region to the new Reporting Address Space		
	ECSCJCLS	Edit the CICS startup JCL to reference the newest Energizer for CICS product data sets.
	N/A	Shut down and restart the CICS region.
Terminate the previous version of the SVC front-end		
	N/A	Stop the Reporting Address Space after all CICS regions are converted.
	ECSJSIRP	Execute the previous version of P100SIRP to remove the SVC front-end that had been used by the previous version of the product.

The migration process consists of the following groups of tasks.

- Setting up the new Reporting Address Space.
- Migrating each CICS region to the new Reporting Address Space.
- Terminate the previous version of the SVC front-end.

Table B-3 Migrating from Releases Prior to 4.1

Status	Element	Description
Setting up the new Reporting Address Space		
	ECSJVDFN	Allocate the VSAM Parameter data set and the Report data sets.
	ECSPISPF	Customize the CLIST to invoke the TSO/E ISPF User Interface.
	N/A	Define the CICS region parameters using the Parameter Facility within the TSO/E User Interface.
	N/A	Define the Energizer for CICS password using the License Facility within the TSO/E ISPF User Interface.
	ECSPRASM	Customize the Reporting Address Space JCL procedure.
	N/A	Establish APF Authorization for the BMC Software load library. This task might have already been accomplished by using the BMC Software Installation and Customization System.
	ECSJSIRP	Customize the JCL to dynamically install the SVC front-end and to start the Reporting Address Space.
Migrate each CICS region to the new Reporting Address Space		

Table B-3 Migrating from Releases Prior to 4.1

	ECSCJCLS	Edit the CICS startup JCL to reference the newest Energizer for CICS product data sets.
	ECSJGDFN	Delete the current Energizer for CICS group from the CSD. Prior to release 3.7, the name is ENERGIZE; otherwise, it is ENERCICS.
	ECSJGDFN	Define in the CSD the new Energizer for CICS group named ENERCICS.
	N/A	Shut down and restart the CICS region.
	ECSJVMRG	Optionally merge the contents of the existing, region specific, report file into a new single report file.
Terminate the previous version of the SVC front-end		
	ECSJSIRP	Execute the previous version of P100SIRP to remove the SVC front-end that had been used by the previous version of the product.

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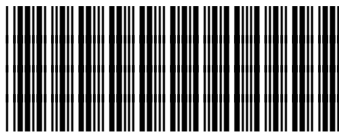
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